American Aviation

MANAGEMENT
ENGINEERING
PRODUCTION
OPERATIONS
MAINTENANCE
EQUIPMENT



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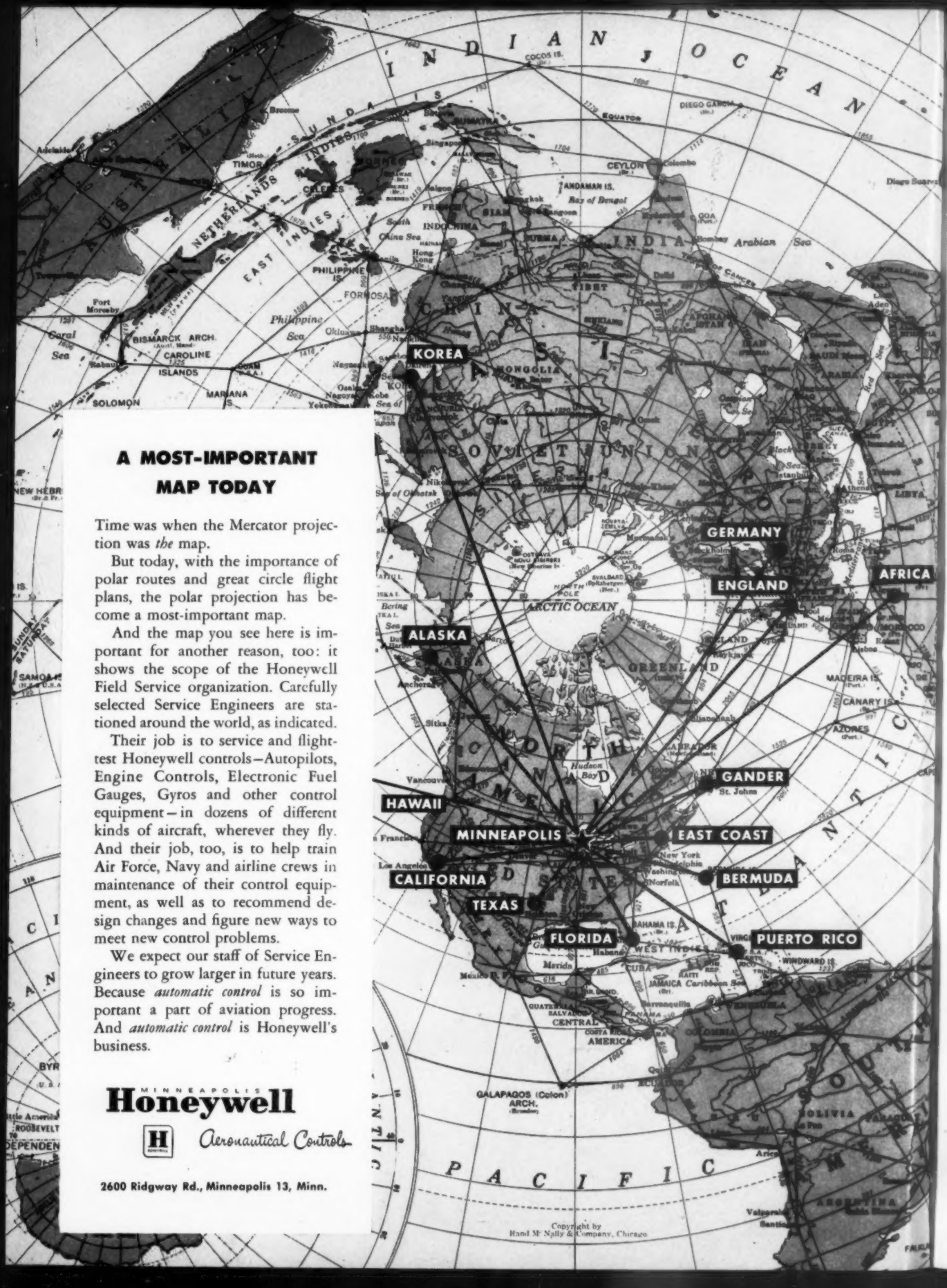
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A MOST-IMPORTANT MAP TODAY

Time was when the Mercator projection was *the* map.

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Changes in the entire aircraft procurement picture are under way. The spotlight's on the industry, focussed there primarily by administration budget cuts. Things to watch:

New Joint Chiefs of Staff start their defense review next month. Any shift in airpower emphasis—from offense to defense, from Air Force to Navy—can mean more business for some plants, less for others. More money for aircraft carriers would mean less for planes.

Senate Armed Service subcommittee on aircraft procurement can have big influence. It has promised a broad review of procurement policies, determination of which planes are "adequate," and which are "obsolete."

Backlogs will shrink, but this won't mean less business. Defense Secretary Wilson says money has been committed too far in advance of being spent—based on 24-26 months' production time, when 18 months are adequate. This is one reason given for appropriations cuts—plenty of money is still available. Thus, although backlogs fall, plants are still busy.

There may be a further 30% cut on top of these more realistic lead times. USAF leaders favor giving manufacturers advance funds against possible re-orders of production aircraft. Instead of finishing one program and then starting another for the same plane—with delays in securing landing gears, instruments, etc., for the re-order—there'll be an overlap. Manufacturer can start stocking for new order five months before finishing the old one.

Weapons system management (Airtrends, June 8) ties in here, too. If adopted after trial at Convair, manufacturers will have much more control over production of complete military planes—a move away from government-furnished aircraft equipment. Result can be better planes, delivered faster and cheaper.

Wilson, incidentally, has not threatened penalties for lagging production, contrary to reports elsewhere. The fact is that Air Force and Navy participation in all production schedules, and the part played by government-furnished equipment in actual delays, rules against any such arrangement.

There's a move toward investment of private capital in new planes. Boeing (jet tanker and transport) and Fairchild (jet cargo design) will build without government order.

Congressional fight over elimination of second sources hasn't materialized—the subject has been overshadowed by all the talk of reduced lead times, money commitments, etc.

• •

Completely new approach in NATO procurement is $50 million contract for F-84F spares awarded Republic Aviation Corporation-International, Geneva, Switzerland.

In the past, U.S.-trained European manufacturers received the contracts. American planemaker had no control over quality of product and made no profit on the order.

Under new plan, Republic's paper subsidiary gets the contract, subcontracts the work to Europeans. Republic retains product control, also shares in profits. Idea is likely to spread.

• •

Extent to which military transport planes will be cut remains unclear. Air Force claims 120-wing line-up will have 16 transport wings; Defense Department says 14.

It also depends on what is classified under "transport." T-36 trainer-transport (canceled) is in this class.

There will be cuts, but they're expected to be in new orders previously set for fiscal 1954 and 1955. Large transports now on order from Douglas and Lockheed (C-118, C-124, R7V-1, C-121) haven't been touched.

The Washington View

Assignment for the Chiefs

Defense Secretary Wilson, in scheduling a preliminary study of the nation's defense needs by the new Joint Chiefs of Staff to begin in mid-July even before three of the members take over their posts, will require that a report be rendered within four months.

This action became necessary because Wilson promised Congress there would be a new JCS defense survey for which a report would be available in November. It is expected to include any possible revision of Wilson's 120-wing "interim" goal for the USAF. As a consequence, the Air Force in all probability will begin holding off on new production contracts between now and November.

Wilson's Scalp is Safe

The clamor for Defense Secretary Wilson's scalp and isolated demands that he resign, which were raised when the Air Force budget cuts were first announced, now seem to have completely subsided. First to challenge Wilson and leap to a hasty defense of the Air Force was Rep. Samuel Yorty (D., Cal.), who was used by the Air Force to release an "official statement" protesting the $5.1 billion cut in new funds.

Whereas Wilson is slowly but surely making amends on Capitol Hill after a poor start at defending the revised budget figures, Yorty, it can be said, has had his fling and is fading back into oblivion.

Where *Will It All End?*

There are growing signs of concern in the aircraft industry, and understandably, over the possibility that the Senate probe of USAF procurement policies will break out of the presently limited confine of investigating Air Force contracts with the Kaiser-Frazer Corp. These fears may become reality, as observers consider the dispatch with which the Preparedness Investigating subcommittee handled hearings on K-F's production of the Fairchild-licensed C-119 and is now proceeding to look at the Air Force contract for C-123B's, for which K-F is the subcontractor of Chase AirCraft Co., a firm in which Kaiser interests hold 49%.

The ability of the subcommittee to move along as it has, to be the strong and aggressive group it is, may be found in the make-up of its membership.

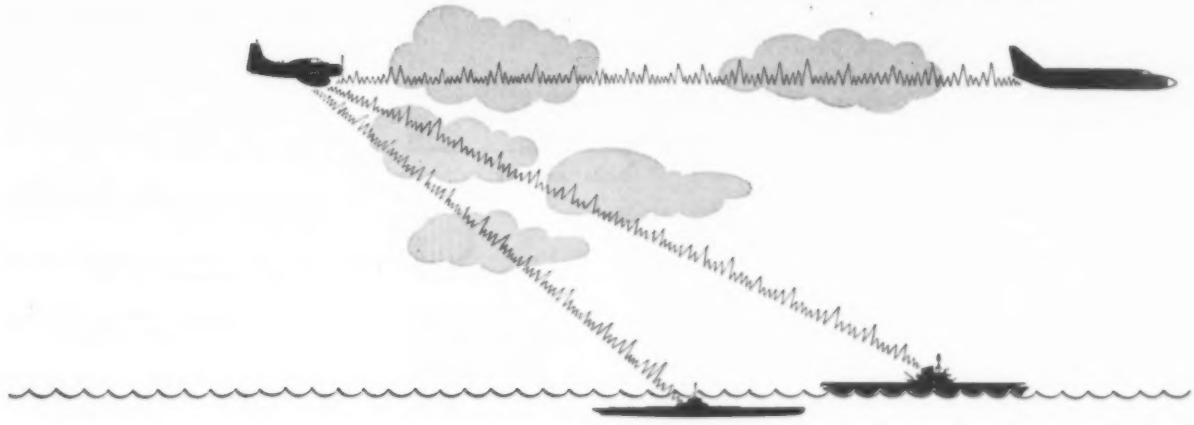
It is Senator Styles Bridges (R., N. H.) who as chairman, is setting the tempo of the investigation, but the others have no trouble keeping up with the fast pace. Two Republican members of the group are Senators Ralph Flanders of Vermont and James Duff of Pennsylvania. Flanders has a background of 50 years in the machine tool industry, while Duff is a lawyer and capable administrator. Democratic members are Senators Harry Byrd of Virginia and Stuart Symington of Missouri, both equally capable and well qualified. Symington is a former businessman whose previous government service was as Air Secretary and then RFC Administrator. Byrd, a 20-year veteran in the Senate, is reknowned for his continual fight to reduce government expenditures.

Up on the Hill

Drive of the Eisenhower administration for economy, which has already been felt in the departments, is rapidly being put into practice by the Federal agencies in their commercial transactions. State Department, for one, has reversed its policy favoring use of first class air travel (to minimize time in transit) and will have more of its personnel traveling by ship and in cheaper accommodations. New regulation overlooked air tourist flights, however, and a spokesman said it was because "they had never been considered." . . . **If Budget Director Joseph Dodge has his way,** an unused two-year-old law will be put into effect, under which government agencies can charge fees for all types of licenses. Such fees would be charged, for example, for granting patents, certificating aircraft, licensing airmen, and for all other permits issued. Moreover, the law is much broader than just licensing—it covers charges for any kind of government service and conceivably can include user charges. . . . **Approval of USAF for joint civilian use of Andrews Air Force Base, Md.,** as a second Washington airport completely eliminated further consideration of the recently acquired Burke, Va., site. CAA Administrator Fred Lee said, however, that it will be at least another 18 months before suitable facilities are available for commercial operations at Andrews. . . . **Administration stand on taxes** has allowed little hope for repeal of the 15% transportation excise tax; now the House Ways and Means Committee has it scheduled as the last for study, if it's taken up at all, during the present general revenue hearings, which will continue until Congress adjourns. . . . **CAB's year-old and once highly significant** "multi-element" mail rate study has been quietly dropped since the Post Office raised the issue of "buying its air transportation on the open market."

. . . Preble Staver

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Adaptability of the AD-5 Skyraider is another example of Douglas leadership in aviation. Designing airplanes that can be produced in quantity to fly *faster and farther with a bigger payload* is a basic rule of Douglas design.



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OTHER PUBLICATIONS . . .

American Aviation Daily, a daily news service for the entire industry, $300 per year. Managing Editor: Keith Saunders.

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Official Airline Guide: Monthly publication of airline schedules and fares. $11 per year in USA and countries belonging to Pan American Postal Union, including Spain and the Philippines. $12.50 elsewhere. Published from 139 N. Clark St., Chicago 2, Ill. Central 6-5804. Managing Editor: Robert Parrish.

American Aviation Traffic News (incorporating Air Tariff Reports): Daily rates and tariff news, $150 per year. Managing Editor: Wallace I. Longstreth.

Where & When

June 22-26—American Society for Engineering Education, Univ. of Florida, Gainsville.

June 29-July 2—ASME Semi-Annual Meeting, Statler Hotel, Los Angeles, including Air Cargo & Heavy Press for Light Metals Sessions.

July 1-3—University Aviation Assn., Summer Conference, National College of Education, Evanston, Ill.

July 3-7—7th All-Woman Transcontinental Air Race (sponsored by 99's).

July 9-12—6th Annual Aviation Exposition, Detroit Wayne-Major Airport, sponsored by Aero Club of Michigan.

July 13-16—IAS Annual Summer Meeting & Honors Night Dinner, IAS Building, Los Angeles.

Aug. 19-21—Western Electronics Show & Convention, Municipal Auditorium, *San Francisco*. Sponsored by IRE 7th Region and WCEMA.

Aug. 20-23—Air Force Assn., 7th Annual National Convention, Statler Hotel, Washington, D. C.

Sept. 5-7—National Aircraft Show & 50th Anniversary of Powered Flight, Dayton, Ohio.

Sept. 21-25—Instrument Society of America, 8th National Instrument Conference & Exhibit, Chicago.

Sept. 22-24—Aircraft Spark Plug & Ignition Conf., Champion Spark Plug Co., Toledo, Ohio.

Sept. 27-29—Int'l Northwest Aviation Council, 17th Annual Conference, Gearhart, Oregon.

Sept. 29-Oct. 3—SAE, Aeronautic Meeting & Aircraft Engineering Display, & Aircraft Production, Hotel Statler, Los Angeles.

Sept. 30-Oct. 1—AIEE, Aircraft Electric Equipment Conference, Seattle.

Oct. 28-30—Southeastern Airport Managers' Association, Annual Convention, Marlin Beach Hotel, Fort Lauderdale, Fla.

INTERNATIONAL

June 24-26—Int'l Aircraft Brokers' Assn., Annual Conf., Copenhagen, Denmark.

June 26-July 5—Int'l Aircraft Engineering Convention, Paris; and Int'l Aircraft Show, Le Bourget Airport, Paris, sponsored by French Aircraft Industries Association.

July 12-19—2nd Int'l Air Show, San Nicole Airport, Venice, Italy.

Aug. 25—ICAO Legal Committee, Rio de Janeiro.

Sept. 7-13—SBAC Aircraft Show & Flying Display, Farnborough, England.

Sept. 7-18—IAS-RAeS, 4th Int'l Conference, London, England.

Oct. 5-10—IATA Annual Assembly, Montreal, Canada.

Oct. 10—International Air Race, England to Christchurch, N. Z.

Nov. 1-22—IATA, Traffic Conferences, Honolulu.



If this man were free to speak...

Much of his thinking is classified as *Security Information*. Much of his mind is pledged to silence, for the love of his country and the future of our world . . . But this much he *can* tell:

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- Plane Procurement Investigation
- U. S. Evaluates French Trainers
- Europe's Newest Airport

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Meet Your Editors



Longstreth

WITH the complex regulations in worldwide air transportation being constantly revised to reflect economic changes, it takes plenty of action on the part of a rates and tariffs man to keep up to date.

AMERICAN AVIATION's busy Rates and Tariffs Editor, Wallace I. Longstreth, does a thorough job of keeping subscribers well informed on this important subject. As Wally sums it up: "A tariff is like the ticket in the Chinese laundry . . . No ticket—no shirt—and *no tariff, no airline.*"

Wally came with us early last September from Capital Airlines, where he was assistant to the manager of rates and tariffs. Wally turned out to be the type of editor who doesn't like lost time or motion. Proof of this is found in the fact that he not only gathers and edits the rates and tariffs news for this magazine, but in addition handles personnel news and related developments. He is also managing editor of AMERICAN AVIATION TRAFFIC NEWS, our daily publication devoted to the foreign and domestic air traffic world.

At the beginning of each month, he has the added responsibility of preparing the Travel News Section for the *Official Airline Guide*. This variety of work doesn't bother Wally a bit. He's holding up well and his duties have never interfered with his infectious grin and sense of good humor.

* * * * *

Wally was born in South Dakota and soon after moved and settled in Kansas City. Early in 1941 he was called to active duty with the Naval Reserve, serving on a cargo ship. During the war he saw active duty in both Atlantic oceans, the Caribbean and the South Pacific, touching on practically every island west of San Francisco.

In 1945 Wally settled here in Washington and started teaching radio fundamentals and military training at the Woodrow Wilson High School. In spare time he attended George Washington University. At school, he filled in on the school band and on the side tooted what is known as a "hot" trumpet.

Then, in early 1946, he joined Capital (then Pennsylvania-Central Airlines) to help organize and operate their "Quick Reference Guide." This guide was a sales aid for reservations and ticket counter personnel—scheduling information, fares, and routings.

A year later, when PCA became Capital, Walley was transferred to rates and tariffs. There he supplied management with all information relative to this broad field, advised field personnel of tariff changes, and made up and filed tariffs with the Civil Aeronautics Board.

The Longstreths live nearby, in Arlington, Virginia, and now are planning to build a new home . . . which is one project Wally assures us he won't tackle personally.



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Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

BIGGEST SCUTTLE?

To The Editor:

A recent article in AMERICAN AVIATION entitled "Will Wilson Scuttle Second Source Program," by Robert M. Loebelson, brings back fond memories of the biggest scuttle of them all in its time.

You may recall that Fisher Body had a B-29 sub-asssembly program at Cleveland in World War II, and at the same time they worked on a pursuit plane called the XP-75.

After spending something like forty million dollars building seven planes, only two of which I guess ever flew, the program was dropped and no one has ever heard of contra-rotating props and 3000 hp Allison powered XP-75 to this day. Leading the world in aviation has its blind alleys, and costs us millions, but you can't be caught with too little too late!

WARREN W. ANDREWS
11351 Avenue J
Chicago 17, Illinois

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CONGRATULATIONS

To the Editor:

Congratulations on publishing the Benny Howard paper. This is good, constructive material and more of it should be done.

JACK BARTOW
Wings Field
Ambler, Pa.

•

NO PUBLIC SHOUTS

To the Editor:

I can't refrain from writing you a note on your leading editorial of May 11 about the question of certification of the Comet in the U. S. A., because I don't think that you have quite appreciated our point of view.

As the manufacturers of the aircraft we do feel that it is most regrettable that any sort of political issue should be made of the question and the answer, we agree, can be given only from a purely technical standpoint.

Our situation is this: Pan American and ourselves have signed a contract for a small number of Series III Comets for delivery in 1956. This aircraft is on the drawing board and the prototype under construction, but the main features of the design are fixed and cannot well be altered at this stage. There are not many differences in the requirements for piston-engined and turbine-engined aircraft, but there are of necessity a few, and the only requirements in the world that cover those few differences are those of the Air Registration Board.

We can only design and build an aircraft to requirements that exist, and it is entirely our responsibility to obtain a Certificate of Airworthiness on the basis of those requirements. We obviously cannot undertake to obtain a Certificate on requirements that do not yet exist and which may possibly be at variance with those of the ARB. Nor can we put up for certification by CAA, nor even to the ARB, an aircraft that has not yet flown.

Since the CAA and the ARB fully recognize each others competence by the reciprocal recognition of each others certificates of airworthiness for piston-engined aircraft, we had hoped that this confidence would extend to recognition of ARB's competence to judge the airworthiness or otherwise of a turbine-engined aircraft.

We appreciate that this may be a difficult pill to swallow, for the CAA has a heavy responsibility to the American public and will obviously want to be satisfied that the British regulations are sound. I know that the ARB are anxious to cooperate in every possible way, as naturally we are as the manufacturers, and we sincerely hope that a solution may be found in this way.

The alternative of waiting and putting the actual aircraft up for completely separate American certification on American requirements, yet to be laid down, is obviously not practicable.

Already the uncertainty of the situation is having its effect, for we do not know how much effort and expense is justified to meet the American operators' own specific requirements as regards layout, equipment, instrumentation, etc., and unless the whole question (vis a vis CAA and ARB) is resolved in the fairly near future it must affect delivery dates. Nor, I should image, can any airline afford to tie up capital in a project which they are uncertain of being allowed to operate.

We believe that the problem can be resolved and that there is willingness on the American side to try and do so. I do agree that we need to keep calm and not shout rude things in public just because a solution is urgent and progress towards it has hitherto not been very rapid. As I said, it is a technical question and not a political one.

Apart from mere theorising, there is now a great deal of experience on which to draw relating to Comet I and IA, so there is a good practical basis on which to talk.

F. H. M. LLOYD
The de Havilland Aircraft Company Limited
Hatfield
Hertfordshire, England

•

WHY NOISE? SOME ANSWERS

To the Editor:

Your recent article on airport public address systems was read with considerable interest. In fact, it was probably the most stimulating piece since the saga of Le Bidet. Unfortunately, the situation is like cutting taxes and balancing the budget—everyone agrees it should be done, yet no one knows exactly how to accomplish it.

This is written not in defense of the babbling P.A. system, or to dispute any of the facts in your story, all of which were quite correctly stated. Rather, I would hope to acquaint you with some of the "whys" and "wherefores" of what might be termed the IBS (Intra-Mural Broadcasting System).

To understand the voice-testing gadget, you must first concede that many of its users are probably ham actors at heart, possessed of a strong desire to capture a diction award. Perhaps in an unguarded moment Aunt Martha allowed as how her favorite nephew sounded like Edward R. Murrow in front of a mike . . .

Now flight crews are pretty nice people. A few of them, however, assume an attitude that only ground crews delay airplanes; flight crews are never responsible for such delays. So, Captain Video has been known to walk out of the Operations Office 20 minutes before departure time and say: "Let me know when you're ready to go."

He may be refreshing himself with a cup of coffee, or buying his copy of AMERICAN AVIATION at a nearby newsstand. Then again, he could be in the tower searching the skies for flying saucers. The agent would develop a frustration complex if he attempted to dial every phone extension in the airport . . .

Why page the ramp agent and tell him to answer his phone? To be sure, the agent has normal hearing. Oftentimes he doesn't hear the tinkle of Mr. Bell's instrument because the skipper of Staten Island Central's Old-Tripe Planetary Super Express is racing all four engines, with added accompaniment being supplied by other aircraft . . .

Honestly, Wayne, if you had four 2000 horsepower engines in your bedroom, would you hear the gentle summons of an alarm clock? And it is important that the ramp agent answer his phone because the ticket counter may be calling to notify him that Senator Handclasp has just arrived and if we don't hold the flight we will all be reduced to something less than a common denominator.

Admittedly flight departures are announced too frequently. Yet, with all these announcements, a surprising number of passengers are left behind "because we failed to announce the departure." Obviously, the passenger was in a phone booth or somewhere out of hearing range when the flight announcement was made, but not many of them may admit it . . .

What to do about it? We, here at TWA, initiated some corrective action several years ago by omitting unnecessary language from flight departure announcements. If the flight is a local one, we abbreviate the announcement by referring only to the major cities it serves and "intermediate points."

One little detail not apparent in your survey . . . listening to the chatter is distressing enough, but pity the airlines. We not only have to listen to it, but have to pay for it too!

Yours for candlelight and soft music.

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Industry Spotlight

Landing of a Piasecki YH-2 helicopter at the river entrance to the Pentagon on June 3, carrying a full load of Air Force officers from Bolling AFB in about three minutes flight time, renewed speculation that a helicopter shuttle service will be inaugurated between key military bases in the Washington area. Actually the YH-21 was en route to Texas for use in a training unit.

• •

The Air Force is now conducting high altitude tests with a Sikorsky H-19B and a Piasecki YH-21 at Lowry Air Force Base near Denver.

• •

Operating time on the Allison J35 axial flow jet engine has now passed the one million hour mark. As of May 1 some 1,022,141 operating hours had been logged on J35's, most of it in the Republic F-84.

• •

Carrier suitability tests of the Douglas XF4D-1 delta wing jet fighter are under way at the Naval Air Test Center, Patuxent, Md. Cross country and demonstration flights are being handled by engineering test pilot Bob Rahn.

• •

First industry-wide joint action on the C-46 problem (attempting to improve the plane's performance to meet CAR Part 4b by January 1, 1954 or defeating the ruling) has been formed, bringing together the Air Transport Association, Independent Military Air Transport Association, Air Coach Transport Association and Transport Air Group into a C-46 Industry Committee headed by Howard J. Korth of American Export and Import Co.

• •

Although Chile is the first foreign country to order Beechcraft twin engine Mentor trainers, several other countries are negotiating for purchases. The model ordered by the Chilean Air Force, known as the Model B45, is practically the same as the USAF's T-34A except for certain accessory equipment.

• •

Used aircraft prices, which have held up remarkably well, will probably be boosted by the USAF program to recall the C-54's now on lease to air carriers. Present prices for used C-54's run about $650-$700,000. Other used aircraft price levels: Beech D-18's, $60-$75,000; Curtiss C-46's, modified, $90,000 to $100,000; Douglas C-47's, passenger equipped, $80-$90,000; Lockheed 18's, $80-$90,000.

• •

Test schedules on the Bristol Olympus 9750-pound-thrust turbojet and the 3780-horsepower Porteus 705 turboprop engines have been completed by the Bristol Aeroplane Company. Olympus, under super-priority production program, underwent 150 hours duration while the Proteus went 200 hours, including 10 hours at take-off power, bringing total test run time to more than 1000 hours.

• •

Increasing number of electronic firms are eyeing the airborne communications and navigation equipment field. Good example: 35 manufacturers are keeping in close touch with Aeronautical Radio's work on a specification for airborne radar.

• •

United Air Lines started testing a special RCA-built airborne radar installation on June 1. The set, not a production military unit but one developed by RCA in cooperation with UAL, is installed in a Douglas DC-3 and has been seeking out weather on an every-day schedule. As of June 10 the plane had only missed one day's flying.

• •

Major inspection periods for the Bell 47 helicopter have been jumped from 300 hours to 600 hours as a result of component design improvement plus the service record of commercial and military operators.

• •

Cessna's five-place Model 195, now in production, incorporates 50% larger flaps aimed at reducing ground roll by 12% while also permitting a steeper landing approach. Other changes include new elevator, relocated horizontal stabilizer, and redesigned interior.

• •

General Electric has under development two very-high-thrust engines, in the 15-20,000-pound-dry-thrust category, designated the J77 and J79.

AMERICA'S NEWEST WINGS FOR ATOMIC DEFENSE...

"DELTA WINGS," BORN AND BUILT BY CONVAIR'S

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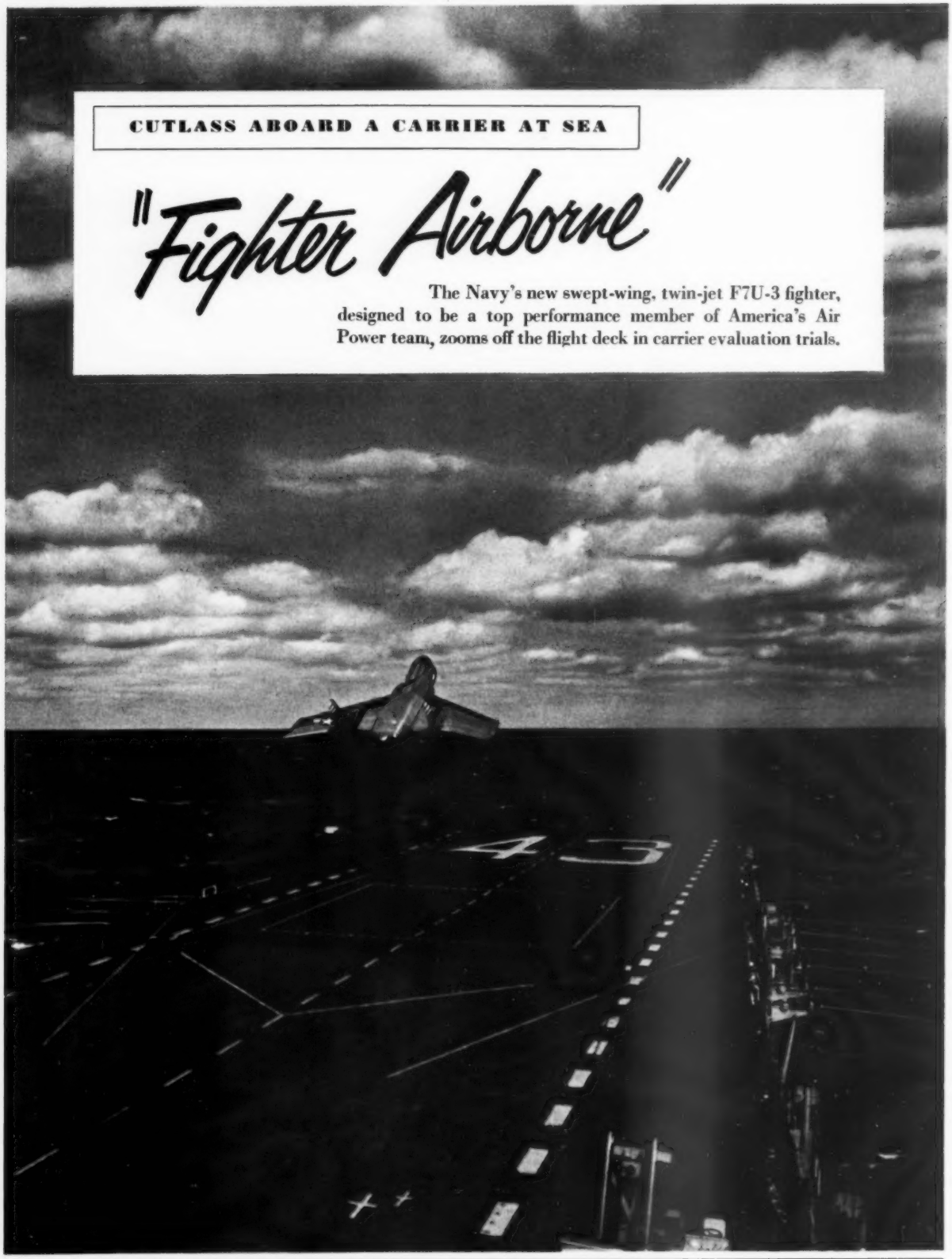
WATER-BASED FIGHTER
Convair's twin-jet "Sea-Dart" (XF2Y-1) expands the air defense perimeter of fleets at sea and bases ashore

LAND-BASED INTERCEPTOR
From this experimental design comes Convair's supersonic F-102 to spearhead U.S. defenses

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Editorial

All Set For Now

AS THIS is written most of the shouting over the Defense budget is over. Defense Secretary Wilson finally made the sort of presentation which both Congress and industry could understand. With certain relatively minor exceptions the earlier fears—and the cries that the nation was about to surrender to the U.S.S.R.—proved to be unfounded.

As this is written, too, a Korean truce is imminent. Anyone who thinks that this truce is more than a halting point along the rough road toward an eventual large-scale war or a large-scale peace is being foolishly optimistic. Any letdown in the defense effort until this nation reaches its maximum defense goals will be nothing short of tragic. We trust Defense Secretary Wilson will stick by his promise that there will be no letdown as far as his department is concerned.

by W. W. P.

Far more important than the haggling over the current budget, in our opinion, is the forthcoming all-out review early this fall of the defense program and the functions of the various services. This will be all-important. A new Joint Chiefs of Staff and a new civilian top command in the Pentagon can make a new approach to the age-old rivalries of the various services. Possibly, just possibly, the civilian heads will be able to knock enough military heads together to eliminate some of the ridiculous duplications, inefficiencies and wastes with which the armed forces are ridden.

Certainly of the utmost importance in a new alignment of defense goals must be a new appreciation of airlift. Retiring AF Chief Hoyt Vandenberg, who scarcely distinguished his closing days with his repetition of plattitudes and generalities in front of equally-uninformed Senators studying the new defense budget, was noteworthy for a complete lack of imagination and understanding about air power. To Vandenberg air power consisted of fighters and bombers. But air power, as any real airman knows, embraces far more than combat aircraft. Under Vandenberg the Air Force progressed hardly one inch toward a broad air power concept for the nation.

In this connection we are pleased to note that Fairchild Engine & Airplane Corp. is about to embark on a multi-million dollar research project (with its own money) leading to the development of a jet-powered cargo airplane. This is sound planning on the part of Fairchild management and directors. Boeing Airplane Co., also, has not waited for government funds with which to embark on a big jet transport project. Industry is very often far ahead of the military services and in the case of airlift has been a full decade ahead.

As explained elsewhere in this issue of the magazine, the crux of the new administration's defense budget rests in lead times. Not everyone in industry believes that all re-order lead times can be cut to 18 months but certainly a great deal can be done in this regard and such lead time cuts account for much of the savings proposed by Secretary Wilson. As we said on this page several issues ago, no combat aircraft are to be eliminated from the program either in fiscal 1954 or in fiscal 1955. The new programming at the Pentagon begins to make sense and in the long run it seems to us that industry generally will be the beneficiary.

Subsidy in Limelight

Unless Congress blocks the plan by July 31, an historic new chapter in U.S. scheduled air transportation will take place October 1. On that date the responsibility for an estimated $80 million in subsidy payments will be transferred from the Post Office Department to the Civil Aeronautics Board.

So broad is this move that its full implications aren't yet understood by even the government attorneys involved in the Presidential order. But one thing is most awfully clear: all airline services remaining on so-called subsidy rates will be placed in the public and Congressional limelight for the first time. And the Post Office, which will pay only service rates out of its own funds, bows out as a primary government agency involved in the development of American air transport.

Whether this important transfer of responsibility augurs for good or evil remains to be seen but Congress will now play a vital part in determining what subsidy services remain. The present outlook is that local service lines, for example, will be placed roughly in the same category as rivers and harbors and veterans hospitals and other "pork barrel" projects. Their future will be somewhat determined by the amount of local pressures generated for their continuance. In other words, all those airline services remaining on subsidy (and this includes all local service carriers and all international services) are thrown back at least partially into the political arena.

The big test—D Day—will come for the fiscal year 1955, which begins July 1, 1954. Sometime during the months preceding July 1, the CAB will have to go to Congress for subsidy funds. Each carrier's subsidy needs will have to be justified. Meantime there are many areas of uncertainty involving CAB, the Civil Aeronautics Act, and the Post Office Department, which the lawyers will have to iron out. What they do will bear close watching. Local service carriers, especially, will have to take close inventory not only of their own operating costs but of their regional political resources.

(*Continued on page 14*)

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Throwback to Bidding

As general traffic manager of Sears, Roebuck & Co., John Allen was constantly seeking more economical transportation for the huge volume of mail and shipments generated by his company. When he joined the Post Office Department a few months ago as Assistant Postmaster General-Transportation, it was a foregone conclusion that he would seek more economical transportation.

He has begun talking about a new system of negotiating rates of pay with the airlines carrying the air mail on the grounds that by bargaining here and there he could save the government a lot of money. As a means of adding sugar to his proposal he is casting out the idea that the airlines should handle all of the first class mail which cannot now be handled by overnight rail delivery and there have been figures as high as 100 million ton-miles per year mentioned in the discussions. Since the airlines now handle 70 million ton-miles a year the prospect of another 10 million ton-miles is indeed a lot of sugar with which to sweeten the pie.

Mr. Allen is to be commended for his desire to save money for the public, but we wonder if he can explain how his negotiated rate proposal differs from the air mail bidding system conducted by the Post Office Department prior to the passage of the Civil Aeronautics Act of 1938. If ever there was a system which became ridiculous to an extreme, a system so inherently vicious and subject to abuse that it became a farce, it was the old bidding system which reached its zenith when one airline bid zero for a contract.

There is no doubt whatever that the Post Office Department could cut mail transportation costs (to itself) by a very great margin by opening the mail to competitive bids. But in so doing it would destroy everything accomplished since 1938 in bringing stability and progress to the airline industry. Chaos would result. However, we are sure that Mr. Allen doesn't want to revert to open bidding but will find a way, in cooperation with the CAB, of lowering present unit transportation costs by increasing the total volume of mail given to the carriers, providing, of course, that the railroads losing out on long-haul first class mail don't block the proposal.

. . . WAYNE W. PARRISH



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American Aviation

VOLUME 17, NO. 2



ROUND-THE-CLOCK testing of F-84F's is called for in a new program at Edwards AFB.

Air Force Tests New Policies at Republic

$50 million contract to Republic's European subsidiary and accelerated F-84F tests may set trends.

By Robert M. Loebelson

WHILE most aviation executives last week were concentrating their attention on the USAF budget hearings on Capitol Hill to try to figure out the implications of reduced requests, they were also taking careful note of the activities of Republic Aviation Corp., which was quietly but effectively s[illegible]g precedents for the rest of the indu[illegible].

Republic was engaged in two separate activities, 6000 miles apart, which, the company felt, would set patterns for both aircraft production subcontracts in Europe and large-scale output in the United States:

• **In Lugano,** Switzerland, Republic's paper company, Republic Aviation Corp.-International, had received permission from the USAF and the Mutual Security Agency to handle its own F-84 parts production by granting subcontracts to European plane builders.

• **At Edwards AF Base,** Calif., 10 of Republic's new swept-wing F-84F Thunderstreaks were undergoing an accelerated 5000-hour service test program designed to eliminate as many of the plane's "bugs" as possible before it gets into large-scale production for the Air Force and North Atlantic Treaty Organization nations.

Republic president Mundy I. Peale was in Europe preparing to sign a contract with Societe Nationale de Constructions Aeronautiques du Sud-Est in Paris, whereby Sud-Est would begin a long-range program to turn out F-84 and F-84F parts under Republic control. In the past, the prime contractor has exercised no control (and received no profit) when a European firm was told to build its parts by MSA.

Watching Republic-International's negotiations with anticipation of possibly following its lead are at least five other top aviation companies, all of them manufacturers of products widely used by NATO nations:

• **North American Aviation,** whose Canadair-built F-86 Sabre will be flown by British and Canadian Air Forces in Europe, whose own Sabres will be coming into greater operational use by the USAF, and whose F-86D parts are to be turned out by Fiat in Italy under an MSA contract (see photo, p. 18);

• **Fairchild,** whose C-82 and C-119 Flying Boxcars are flown by the air forces of almost every friendly European nation, and whose Stratos parts are in equally wide use;

• **Curtiss-Wright,** whose piston engines are used on the C-119's, and whose other products are also widely distributed in Europe;

• **Bendix Aviation,** maker of a whole line of aircraft radio and electrical products, all of them widely used;

• **Thompson Products,** whose valves and accessories are standard equipment in virtually every aircraft in Europe.

Republic is no novice at training a

foreign company to produce F-84 parts. At the request of the U. S., Republic last year began a technical assistance program to teach Finmeccanica Corp. of Naples, Italy, the techniques required to produce the intricate plane parts for Thunderjets on duty with nine European nations. But this $8 million contract provided the American firm with no profit on the parts produced, at the same time possibly endangering Republic's reputation if Finmeccanica should for some reason not produce satisfactory parts.

Under the contract, Republic has no responsibility for quality control. Moreover, after getting the $8 million from the Mutual Security Agency, Republic lost an equivalent amount of business to the Italian firm, thus netting virtually nothing on the transaction.

Under the new set-up, Sud-Est, and other European firms which might be licensed to produce F-84 parts at some time in the future, would not receive the contracts from either MSA or the U.S. Air Force. Instead, Republic's Lugano firm, which would do no manufacturing but would simply exist as a paper company, would be awarded the prime contract and farm the work out to whichever firms Republic feels are qualified, and the U.S. would still have the right to veto the award of a subcontract to any given company.

Contract Soon

In the case of Sud-Est, however, all the preliminaries are out of the way, and Republic-International will shortly award the contract. Under the arrangement, the Farmingdale concern will not only make a margin of profit on the transaction but will also be able to keep quality-control checks on Sud-Est.

If, for some reason, Sud-Est's work should prove unsatisfactory, Republic would be able to cancel the subcontract and award it to another European firm.

While these companies keep tabs on Republic's negotiations in Europe, other aircraft producers are following the Farmingdale company's activities 6,000 miles to the west, at Edwards Air Force Base.

The flight test program at Edwards is a radical departure from the USAF's previous Phase Six set-up, in which 200 hours were flown in as short a period of time as possible. The experiment, with 10 of Republic's F-84F's flying 500 hours each on a 24-hour-a-day schedule where possible, is planned so that most of the faults in the Thunderstreak (and there are "bugs" in all new aircraft) can be corrected on Republic's assembly line, thus eliminating major modifications.

Neither the AF nor the company expects the 500 hours of flying to turn up every possible trouble, but the speed-up should help cut down on most of the major ones. There is little doubt that if the Thunderstreak tests prove satisfactory a similar 5000-hour program will be used on all new planes turned out for the Air Force, and possibly the Navy as well.

At present, however, the F-84F tests are being delayed slightly by troubles with the turbine and compressor blades on the Curtiss-Wright J65 Sapphire engine, which powers the Thunderstreak. The aluminum blades installed on the power plant have shown a tendency to crack under certain conditions, and the Air Force has told Curtiss-Wright to substitute stainless steel blades. Until the J65 blades can be replaced, the Thunderstreak Phase Six program is being held up.

Halfway between Muroc Dry Lake and Geneva is the Farmingdale plant itself—the hub of both operations and the free world's largest producer of jet aircraft. What does Republic have on the horizon to follow its new Thunderstreak?

To the somewhat-condescending but often-voiced comment that Republic is handicapped by having all of its proverbial eggs in one basket, company officials laughingly declare, "What do you mean we've only got one plane? We've got the F-84F and the RF-84F."

Actually, however, Republic has several new planes and even some guided missiles ready to go. The company is bound by restrictions not to talk about most of them, but from non-Republic sources AMERICAN AVIATION learned of the following:



ITALIAN REPRESENTATIVES who negotiated and signed the licensing agreement with North American Aviation, Inc., for the manufacture of F-86 interceptors in Italy are shown with J. H. Kindelberger, chairman of NAA's board (center), on the flight line in Los Angeles. They are Professor Vittorio Valetta (left), president of Fiat, and Gen. Umberto Tolino, Italian government official.

• **The F-105** and the RF-105—An enlarged, delta-wing fighter-bomber, for which Republic has already received production orders. These will appear in 1955-1956.

• **The KF-103**—A supersonic interceptor, of which only two prototypes are to be built so far. The first model will probably fly sometime in 1956.

• **The XF-84H**—A test-bed for various turboprop engines and supersonic propellers. Power plants will probably be the Allison T40 and T56, the Pratt & Whitney T34, and the Curtiss-Wright T49.

Second F-84F Line

The Farmingdale plant expects to turn out the last of about 4600 straight-wing F-84 Thunderjets in about a month, with the present F-84G (straight-wing) production line gradually destined to become a second F-84F line.

In addition to the USAF the swept-wing F model probably will go to the various NATO and other nations which have received F-84's in the past, i.e., France, Norway, Denmark, Italy, Netherlands, Belgium, Turkey, Greece, Portugal, Yugoslavia, and Nationalist China.

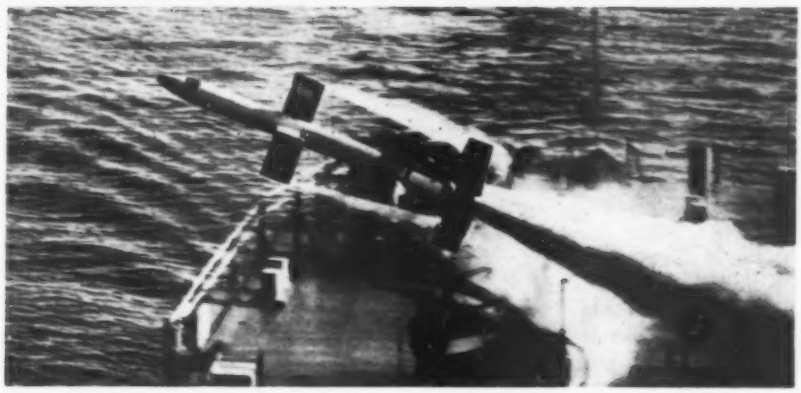
Two experimental installations of the F-84, one as a parasite plane to protect the Consolidated Vultee B-36, the other involving two Thunderjets suspended from the wing tips of a Boeing B-29, are under way for the USAF, and these too may lead to new and different uses of the fighter-bomber.

In the B-29 rig the two jets could be carried to their targets without using their own fuel, thus giving them more time over the target.

Republic is also toying with the idea of a commercial airplane. Officials deny they plan to go ahead with a twin-jet executive plane which would sell for less than one million dollars, but admit that there have been studies along that line. If such a craft ever develops, it will probably use General Electric J47 or Curtiss-Wright J67 engines.

The Farmingdale company, whose present sole customer is the USAF, is thus doing its utmost to stay on the black side of the ledger by designing and building aircraft which the AF will buy. With the exception of the XR-11 Rainbow photographic plane and the XF-91 interceptor (many features of which will appear in future Republic planes) every ship built by Republic has ended up as a production airplane. Mundy Peale & Co. hope and expect that the situation will continue.

• • •



First official photo of the firing of the Fairchild Lark, anti-aircraft guided missile, from the Navy vessel, Norton Sound, is shown above. Smoke cloud over the stern is caused by booster rockets which push missile to flight speed, dropping off as it continues under power of its own rocket motors.

F-100 Supersonic in Level Flight

North American's F-100 is reportedly attaining level flight speeds around Mach 1.08 while the Lockheed F-104, scheduled to make its first flight early next year, will fly at 1500 mph, according to reports from the West Coast.

Although the official statistical wraps have not been lifted from these supersonic fighters by either the Air Force or the manufacturers, the F-100 is reported to have made several test flights at Edwards AFB, Cal., breaking through Mach One in level flight on its first attempt. Said to be piloting the J-57-powered fighter is George Welsh, who was project pilot on North American's F-86 Sabrejet.

Reports from Burbank claim the F-104 will make its first flight next March. The plane will be powered by a new Wright turbojet with 15,000 pounds thrust (presumably the J67 Olympus); its wing span is 28′ according to the International News Service.

B-47's Set New Ocean Speed Records

A wing of 45 B-47 Stratojets completed a mass flight across the Atlantic on June 6. The last Boeing bomber to land set a new United States-to-Great Britain speed record of five hours and 22 minutes for the 3120-mile, non-stop flight. Average speed for the record flight was 575 mph.

A number of planes of the 306th Medium Bombardment Wing bettered the old record of five hours and 38 minutes, established on April 7 by two B-47's on an indoctrinational flight.

The impressive mass movement of a sizeable portion of U. S. jet powered atomic bombing strength began at McDill AFB, Tampa, Fla., with an intermediate stop-over at Limestone, Me. The second and last leg of the flight on which the records were set ended at Fairfield Air Base in England.

The battle-loaded jet bombers, carrying dummy bombs, landed at 15-minute intervals in England with the regularity of commuter trains.

Twenty KC-97 tanker refueling planes, the normal complement of a B-47 wing, went along, but were not used in the record flight. Mass in-flight refueling will be practiced over England and Western Europe, however, during the 90 days the 306th will train there as part of the U. S. Seventh Air Division.

Fairchild Jet Cargo Design to be Pushed

Using its own money, Fairchild Engine and Airplane Corp. has decided to go ahead with the development of a 500-mph, jet-powered cargo plane, probably one very similar to the triangular model the company has been featuring in recent advertisements (AMERICAN AVIATION, May 25).

The craft, the company claims, will have lower ton-mile costs, higher speed, longer range, and quicker turn-around time than current or projected cargo planes. Officials concede that neither the military services nor commercial airlines seem to provide any immediate market for such a cargo plane, but Richard S. Boutelle, president, claims both groups will have such a requirement in the near future.

Fairchild's board of directors approved development of the jet cargo plane, which stems from another company-sponsored study—that one for a jet bomber capable of carrying the atom bomb.

Gross Sees Pilotless Fighters as New Industry

The military airplane of the future will be an unmanned cross between a projectile and a guided missile, according to Robert E. Gross, president of Lockheed Aircraft Corp. The evolution will include a "more or less automatic airplane in which the pilot does much less than he now does," and uninhabited aircraft will launch a new industry.

The plane itself, he said, will become less vital as a defensive unit while guidance elements, guidance systems, computers, communications equipment, and other electronic devices will increase in relative importance.

Turning to the future of commercial aviation, Gross declared both passenger and freight operations will expand greatly, making wide use of jet and turboprop engines. "Long-haul business is destined to go increasingly by air" but tremendous opportunities also exist in the 150-200 mile area.

Time Saved Would Add Another DC-6

United Air Lines' vice president of economic controls, Hal E. Nourse, estimates that each Douglas DC-6 airplane added into UAL's schedule pattern means more than one million dollars in boosted operating profit. A limited number of such planes can be added without buying new equipment, Nourse says.

Answer is in increased efficiency at field stations and maintenance bases through improved tools and facilities, better methods, procedures, and supervision. In United's case, if by these means the useful time of the average airplane could be raised 10 minutes a day, its fleet of 62 DC-6's would add 10 1/3 hours, or the equivalent of another airplane.

Nourse estimates that each added plane could fly more than 2200 miles a day and contribute $2.42 for each mile flown. Deduction of 89¢, almost entirely direct operating costs, would bring plane-mile net profit to $1.53. Annual profit per plane based on flying 762,850 miles would be $1,167,160.

Chase C-123B Investigation Next

The sweeping probe of military plane procurement policies which Sen. Styles Bridges (R., N.H.) promised has now completed its first phase and will move into its second phase in about two weeks.

The first phase ended with the conclusion of the hearing into the reasons for wide variations in the cost of Fairchild C-119's as produced by Kaiser-Frazer and those produced by Fairchild. Bridges' subcommittee will issue an interim report on this hearing and make recommendations to the Defense Department. Next step will be opening of an investigation into the contract awarded to Chase Aircraft Co. for production of the C-123B assault transport (a contract in which K-F is a major participant), the plane now being built at the K-F Willow Run Plant.

Last November, Bridges had charged that the K-F C-119's were costing the Air Force $1,200,000 each, while Fairchild was turning out the same plane for $260,000. Kaiser-Frazer officials at that time indicated they would welcome a Congressional probe "at the earliest possible date."

The four-day session of public hearings held the first of this month was supposed to have cleared the air. No representatives from the aircraft industry were called, however, and testimony was limited solely to four USAF officials. In abruptly concluding the hearings, at which additional Air Force witnesses had been scheduled to testify, Bridges said that sufficient evidence had been presented to confirm and justify fears of the subcommittee that K-F's costs for production of the C-119 have been excessive.

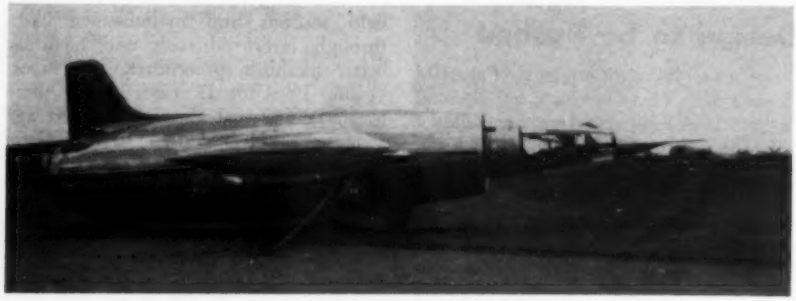
Kaiser-Frazer, nevertheless, considers the hearings proved inconclusive, a spokesman said, because none of the Air Force witnesses adequately presented the real case for K-F's higher C-119 price. As a result, Edgar Kaiser, president of Kaiser-Frazer Corp., may now ask to testify in defense of K-F's handling of its Fairchild-licensed C-119 contract if Bridges decides to go on with the specific investigation. At the same time, K-F is understood to be willing to drop the idea of having Kaiser testify if the committee chooses to call off the probe where it stands.

The following points were made during the hearings on USAF procurement of the Fairchild C-119 from Kaiser-Frazer Corp.:

• **Lt. Gen. Orval R. Cook,** USAF deputy chief of staff for materiel, admitted, after criticism that he was stalling on his answers, that the Air Force is disappointed in the performance of the Kaiser-Frazer operation. He said the Air Force now looks "with apprehension and regret" at the margin of difference in production cost between K-F and Fairchild.

K-F has produced 44 C-119's out of a production order for 159 as of April 30, Cook said, and has paid $150,363,058. He said estimates now are that the total cost will exceed $200,000,000. Gen. Cook helped arrange the AF contract with K-F.

• **Sidney C. Solomon,** Air Force resident auditor at K-F's Willow Run plant, testified that K-F's latest estimated cost on the C-119 contract now stands at $212,922,341 for 159 of the planes, which is a jump to a new high of $1,339,140 per plane.



France's Leduc 021, latest of a series of ramjet-powered prototypes, is about to start its flight test program (air-launched from a mother aircraft). It differs from earlier Leduc models in that it is larger, is armed (two guns), and has a new type of cockpit configuration.

New Autopilot Under Development

Ansco Division of the General Airline and Film Corp. has an automatic pilot under development, known as the Anscopilot, AMERICAN AVIATION has learned. The unit is currently being demonstrated to the military, having completed a reported 75 hours of flight testing. It is understood that the autopilot will sell for $1,295.

Operated by a small electric motor, the Anscopilot works on ailerons, receiving its information from the aircraft's gyro horizon. It has also been reported that the autopilot can execute a bank when the human pilot adjusts a knob on the gyro horizon to the desired degree of turn. The Anscopilot is believed to be the first autopilot to use the magnetic compass for scanning.

If desired, the unit can be hooked up to the aircraft's omni equipment and AMERICAN AVIATION sources report that the unit is able to follow the range after adjustment of a special knob installed on the omni receiver.

To set the autopilot for straight and level flight on heading, the human pilot lines up his magnetic compass, adjusts the aircraft so that the gyro horizon indicator is horizontal, turns the caging knob on the horizon, and the Anscopilot takes over.

The unit is said to be light enough for installation in single-engine aircraft, as well as for military and commercial equipment.

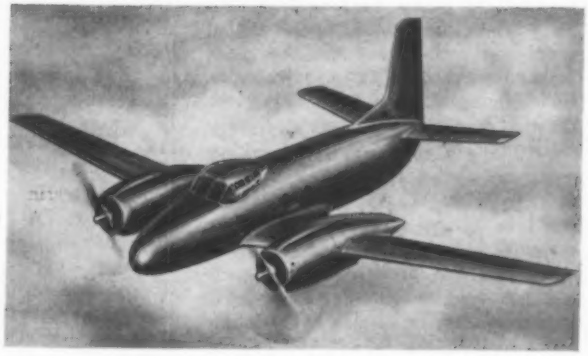
Non-Stop L.A.-Paris Flight May Set Record

The Los Angeles to Paris non-stop flight on May 29 of a Douglas DC-6B by French independent airline Transports Aeriens Intercontinentaux (TAI) may become a world record. Flight was officially timed at 20 hours, 28 minutes by Federation Aeronautique Internationale.

The delivery flight was flown by a TAI crew, with Douglas chief pilot John F. Martin and two other DAC test pilots as observers. The route was a 5700-mile great circle course by way of Winnepeg, Hudson Bay, and Greenland.

With extra tanks on board, fuel carried at take-off from Los Angeles was 6760 gallons, and 840 gallons remained on arrival in Paris. Strong headwinds and storms enroute over Labrador were nullified by tail winds over other route segments, and flight balanced out at zero headwind, according to Douglas Aircraft Co. reports.





HEAVIEST HIT in budget cuts were the Chase C-123B (left), for which orders were halved, and the Beech T-36A trainer (right) which was eliminated, except for two Prototypes.

How Hard Will Budget Cuts Hit Industry?

Not very: no combat planes for combat units will be taken out of production, Wilson says.

THE FINAL shape of the proposed $5.1 billion cut in the U. S. Air Force's fiscal 1954 budget, which is still being debated on Capitol Hill, has now been decided (see box below). The important facts:

• **Only one plane** has been completely eliminated from the program: the Beech T-36 twin engine trainer, which is not yet in production.

• **Not one combat plane** for combat units has been taken out of production in fiscal 1954 or 1955 due to lack of funds.

• **Several plane programs** have been stretched out, but the manufacturers are unanimous (see box on page 22) in their approval of the manner in which cuts will be made.

• **Major savings** will be obtained through adjusting finances to acknowledge existing "slippages," i.e., planes not being produced at the rate scheduled and funded for, and through general reductions in lead time.

Meanwhile, the possibility of a Korean truce became so strong last week that Defense Secretary Charles E. Wilson, who had been defending the Administration's decision to cut the Air Force's new money for the fiscal year beginning July 1 by $5.1 billion, partially reversed himself by asking Congress not to reduce even more.

Where some law makers had been seriously talking about trying to give the USAF about $4 billion of the eliminated money, others, suddenly taking note of the progress at Panmunjom, immediately began discussions of cutting defense expenditures, including the air power build-up, by a greater amount than even President Eisenhower had asked.

But the Korean truce issue was only a mild digression from the "battle of the air power budget," as Wilson, Deputy Secretary Roger M. Kyes, Assistant Secretary Wilfred J. McNeil, Air Secretary Harold E. Talbott, and Air Under Secretary James H. Douglas presented a solid front to Chairman Homer Ferguson's Senate Military Appropriations Committee in claiming the budget reductions would not hurt air power and Gen. Hoyt S. Vandenberg, outgoing Chief of Staff, Lt. Gen. C. B. Stone III, DCS-Comptroller, and Maj. Gen. Oliver S. Picher testified exactly the opposite.

The differences of opinion were easy enough to undertand. Vandenberg & Co. insisted:

• **There was nothing to indicate** that the danger from Russia had lessened, and the Joint Chiefs of Staff still felt the AF's 143-wing goal was necessary.

• **The 143-wing goal** could have been met, had the new Defense team not imposed limitations on personnel, air base construction, and expenditures, at the same time reducing the amount of new money to buy aircraft and related equipment.

Wilson and his colleagues testified, however, that:

• **While the Russian threat** was still with us, the 143-wing goal had not been abandoned but would be reviewed by

Where the Ax Falls

Following is a company-by-company rundown of the scheduled production situation:

BEECH—T-36A eliminated, T-34 orders continue.

BOEING—B-52, C-97, and B-47 orders remain unchanged.

CANADAIR—USAF order for Beech-licensed T-36A canceled. RCAF orders for F-86 and T-33 are untouched.

CESSNA—Model 318 twin-jet trainer powered by Continental Marbore engine believed canceled.

CHANCE VOUGHT—F7U-3, A2U, and new day fighter continue.

CHASE—C-123B scheduled output cut to about half.

CONSOLIDATED VULTEE—B-36, F-102, F3Y-1, T-29B, and R3Y orders as before.

DOUGLAS—B-47, AD-5, A2D, A3D, A4D, C-118, and C-124C continue.

FAIRCHILD—C-119 output continues unchanged.

GRUMMAN—F9F-6, SA-16, S2F, and AF-2 orders continue.

LOCKHEED—No changes in orders on the F-94C, T-33, P2V, WV-2, C-130A, B-47, R7V-1, and C-121.

MARTIN—B-57A, P5M-1, and XP6M-1 orders untouched.

McDONNELL—F-101, F2H-3, F3H-1 continue as before.

NORTH AMERICAN—F-86F, F-86D, F-86H, F-100, T-28A and B, AJ-2, A2J, FJ-2, and FJ-3 are neither canceled nor stretched.

NORTHROP—F-89C modifications, F-89D orders, and XB-62 missiles work continue.

REPUBLIC—F-84F and RF-84F delivery schedules untouched.

TEMCO—F3H second source work presumably continues. Company has not yet been informed of any possible changes.

the incoming Joint Chiefs of Staff later this year. In the meantime, no combat planes had been eliminated, and plane production, except for a few types, would continue in fiscal 1954 as the AF itself had planned.

• **The goal could not have been met** under any circumstances, except by including World War II aircraft, which would be useless anyway. Besides, the "interim" 120-wing goal, which is nothing more than another stretch-out to make plane production realistic, will have a corollary of 22-plus wings in the Air National Guard and Air Reserve, and the U. S. will thus have the 143 wings after all in 1955.

Under the 143-wing goal, the AF planned on 57 wings for the Strategic Air Command (Convair B-36's, Boeing B-47's, B-52's, and B-50's); 40 for the Tactical Air Command (Republic F-84's and F-84F's and North American F-86's); 29 for the Air Defense Command (Lockheed F-94's, North American F-86D's, and Northrop F-89's); and 17 troop carrier wings (Fairchild C-119's, Douglas C-118's and C-124's, and Chase C-123B's) by January 1, 1956.

The interim goal, however, reduces SAC to 52, TAC to 25, ADC to either 27 or 29, and transport wings to 14 or 16, the latter discrepancies resulting from differences of opinion between the USAF and the Defense Department, with the AF claiming the number of carrier wings is 16 and ADC 27.

Wilson insists that he is simply planning to follow the re-stretched schedule set by the AF last January 9, which took into account production slippages since the A-19 schedule was set last September.

According to the Defense Department, overall slippage was 12%, while deliveries of combat planes fell short by 22%. As examples, Defense spokesmen cite typical slippages encountered in the last year: Boeing B-52, four months; Martin B-57, six months; Republic F-84F, four months; and Beech T-36A, eight months.

The defense boss concedes, however, that some helicopters, trainers, and transports will be eliminated or reduced, while deliveries of certain other models will be stretched out. Among them:

• **Beech T-36A,** powered by two Pratt & Whitney R-2800 engines, which was not yet in production, has been completely eliminated because existing trainers can do the same job. The cancellation applies also to Canadair, Ltd., which was to have been a second source for the plane.

• **Chase C-123B,** using two R-2800's, has been cut by more than one half. The plane was to have gone into production at Kaiser Motors Corp. Willow Run plant later this year, but the reduction and the Senate probe into Kaiser's C-119 production (see page 20) may cause the AF to change its mind and place the assault transport back with Chase Aircraft Co.'s West Trenton, N. J., plant, which is now under construction.

• **Cessna 318** jet trainer, powered by two Continental Marbore turbojets, may have been eliminated. Winner of the USAF's "Trainer X" competition, the plane was not yet in production and only the prototype had been ordered.

• **Consolidated Vultee VT-29 and C-131,** military versions of the Convair-Liner, will not be reordered, but Convair officials claim they expected no new orders for these two models anyway.

• **Lockheed's C-130A** turboprop cargo plane, powered by four Allison T56 engines, has been stretched out, although none of those previously ordered has been cancelled.

• **Boeing B-47** medium jet bomber, powered by six General Electric J47 engines, has been cut by 200 planes which had been destined for crew training. Orders for these 200 had not yet been placed, so there is officially no cancellation. Wilson claims the planes can be ordered with fiscal 1955 funds and no production will be lost.

The big debate is not yet over. Senate Democrats and some Republicans are still planning a floor fight to give the Air Force more money than the Defense Department spokesman says it needs, in spite of the fact that Wilson maintains the added money could not be spent "intelligently." But most observers feel that the Administration's request will prevail, even though a token amount might be added. • • •

How the Industry Takes It

Reaction of leading aircraft builders to proposed Air Force budget slashes, as described to them at a Pentagon meeting June 2 with Defense Secretary Charles E. Wilson and Air Force Secretary Harold E. Talbott, included the following comments:


Echols

George M. Bunker, chairman of The Glenn L. Martin Co.—"It helped dispel a number of uncertainties in the industry, although one just can't wave a wand to reduce lead time. Martin is ready to carry forward what's on the books."

Oliver P. Echols, chairman of Northrop Aircraft, Ind.—"I left the meeting with a feeling of assurance I did not have earlier. Northrop's procurement schedules are not affected."


Douglas

Donald W. Douglas, Sr., president of Douglas Aircraft Co.—"The Douglas workload shapes up the same as contemplated with only very minor exceptions."

C. W. LaPierre, vice president of the General Electric Co., Cincinnati—"There is no need to project production plans for four or five years because American industrial might has been built up to a point where a shorter lead time is satisfactory."

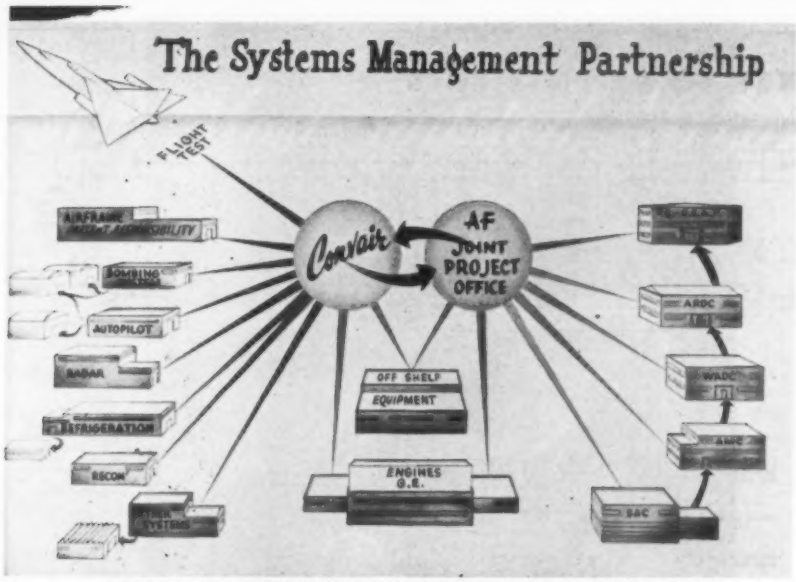
Lowery L. Brabham, vice president of Republic Aviation Corp.—"Every Republic airplane presently under contract with the Air Force or planned under new schedules will go forward as scheduled."


Kindelberger

J. H. Kindelberger, chairman of North American Aviation, Inc.—"I saw no place where the fighting ability of the Air Force was impaired. I personally came away with the feeling that the matter is being handled carefully, intelligently, and most competently."

Roy T. Hurley, president of Curtiss-Wright Corp.—"There will be no stretch-outs or cut-backs in production at Curtiss-Wright."

William M. Allen, president of Boeing Airplane Co.—"Boeing has been informed that there will be no reduction in the company's production and development programs. The discussions in Washington make it clear that we will have a continuous substantial program of production for the next several years on Boeing types."



COEQUAL PARTNERSHIP between Convair and the USAF under new "weapons system management" program is depicted above.

Weapons System Concept Tried

A NEW METHOD in military aircraft production—one in which the aircraft builder instead of the Air Force procures or develops most of the equipment that goes into the airplane—has been put into operation at Consolidated Vultee Aircraft Corp.

It is known as "Weapons System Management," and Convair is using it in producing its XB-58 supersonic, delta-wing bomber. If the new approach works out successfully, it may eventually win universal acceptance by the Air Force and the aircraft industry.

"Weapons System Management" gives the airframe manufacturer design and procurement control over all equipment and components that make up the final production model. (See chart.)

Such items are now procured or developed by the Air Force, which supplies this material to prime airframe contractors as GFAE (government-furnished aircraft equipment). Each item is delivered in completed form, ready to be included in the airframe. The following advantages are foreseen:

• **The builder** should be able to make a substantial cut in lead time by maintaining direct control of everything that goes into his airplane.

• **"Weapons System Management"** can eliminate the "matching up" and design changes required to fit standardized parts (GFAE) into a particular airframe. Often a contractor has to string these individual items together in "tinker toy" fashion to fit the need of his type of aircraft.

• **The manufacturer** will be the central agency for all material required for production. This will do away with the present system in which diverse agencies of the Air Force serve as coordinators between the Air Force, the many suppliers of government-furnished equipment, and the prime airframe contractor. It will eliminate compromises, certain conferences, and delays in obtaining approval for practically every design item.

August C. Esenwein, division manager of Convair's Fort Worth Division, sums up the anticipated benefits of this new plan by saying, "We get a better airplane; we get it sooner; and we get it cheaper."

"There are two spheres representing twin orbits of authority," he says. "Convair holds centralized responsibility for coordinating and managing the performance of the entire project, and the Air Force channels all of its requirements, decisions, resources, and support into a joint project office."

USAF Research May Hit New Low

RESEARCH and development officials have been asked to scale down the announced Eisenhower R&D budget of $475 million by about 25%, it has been learned. This could send R&D appropriations for fiscal 1954 as low as $360 million.

The 25% amount, however, would be carried over into next year's spending, it was understood, as another economy measure set forth by Defense Secretary Charles E. Wilson. If this latest reduction plan is carried out, it would reduce this coming year's new money to less than 70% of last year's $525 million.

This would be a new low in the step-by-step decrease of R&D funds, which comprise only from three to four per cent of the entire Air Force appropriation. The Truman figure had been set at $537 million.

The latest cut proposal has put R&D people in a "budget blitz" in which they are maneuvering figures hurriedly, but carefully, to retain projects of merit. Many will be eliminated because there just isn't enough money for the program as originally set up. Efforts are being made to trim in each general R&D area.

The R&D savings would be derived by trimming administrative costs and cutting out duplicating projects. Some promising work is bound to suffer, though, in such areas as aerodynamics, propulsion, electronics, armament, and human factors study.

A large portion of the budget slash will hit the development of nuclear-powered aircraft. Many experts maintain it is "too soon" to develop atomic airplanes because of the "lack of fundamental knowledge." Among them is Wilson, who said that if such a plane had been developed under existing contracts, it would have been a "bum airplane."

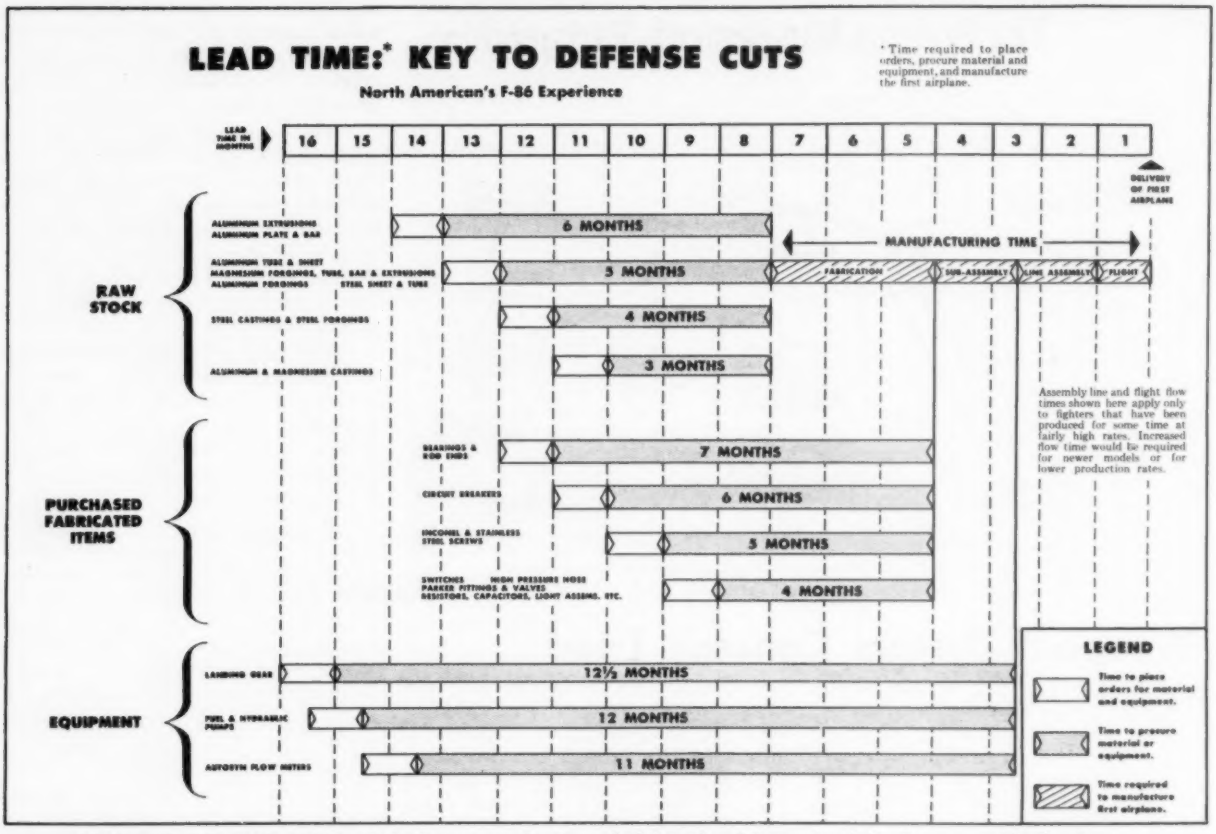
Wilson has contended that reduction in lead time, the period intervening between the placement of orders and the first deliveries, will save the Air Force considerable money. This is a key factor in his overall $5 billion cutback in Air Force appropriations.

The type of lead time Wilson has in mind, however, does not apply to research and development, where periods for completion are difficult to establish, many running longer than seven years.

The defense secretary has spoken on a number of occasions about emphasizing the Air Force R&D program, but in the same breath he has mentioned the economic necessity of fund reduction. With broad cutbacks ahead in aircraft procurement, many Pentagon officials and aircraft and engine manufacturers feel the R&D program should be emphasized to design superior aircraft, thereby making up for future reduction in numerical strength.

The sizeable cut comes at a critical time for the Air Research and Development Command, established only two years ago to maintain an air strength qualitatively superior to any other nation's. A majority of ARDC's top projects are just getting into full swing. The relatively young command headed by Lt. Gen. E. E. Partridge (about due for a normal rotational transfer, reportedly to the Pentagon as Deputy Chief of Staff/Operations), has not yet had a full chance to prove itself, some believe.

• • •



MAKE-UP OF LEAD TIME which dictates production schedules of a fighter aircraft is shown graphically above.

Fighter Lead Times Can Be Cut 30%: NAA

A MAJOR CHANGE in the funding of money for current production aircraft is likely to come out of the current fight over cutbacks in defense spending now going on in Congress.

Immediate effect of the change would be to add five to seven per cent to the price of U. S. Air Force and Navy contracts with the industry for production-type aircraft. This sum would be used in the latter stages of the fiscal year production to start ordering "long lead time" items of equipment such as extrusions, landing gears, hydraulic pumps, certain instruments, etc.

In the case of current production fighters this could mean cutting the lead time—the time between placing a contract for continued production of a current fighter and the delivery of the first aircraft—from 16 months to 11 months.

Such a change has already been proposed by Roger Lewis, Under Secretary of the U. S. Air Force. First tip-off that such a program is getting serious consideration came from Defense Secretary Charles E. Wilson. Testifying on Capitol Hill in defense of his reduced budget, Wilson repeatedly referred to major reductions in lead time as being the source of many of the "savings" in the new Defense budget permitting greater air defense at lower costs.

Said Wilson: "We found out by a careful review that the lead times, that is the time it takes from the time an order is placed for a plane until it comes off the end of a production line, was much longer than is now necessary. These longer lead times were used in building up the January fiscal year 1954 budget requests and, therefore, resulted in a request for excess funds."

In part Wilson's claim of excess lead times referred to the Truman budget practice of funding based on lead times such as: Boeing B-47—26 months; McDonnell F-101—26 months; North American F-100—25 months; Lockheed T-33—23 months. Wilson claimed these are unrealistic lead times, and felt that lead time on the Boeing B-47, for instance, could be cut to 18 months.

But Wilson also introduced an important report prepared by North American Aviation and documenting the case for major reductions in lead time by the simple expedient of adding money to current year contracts, the Roger Lewis proposal. Expenditure of these funds, representing five to seven per cent of the cost of one year's production, would be authorized at the time of the initial plane production contract.

In the case of the F-86, these funds would not be committed until 16 months prior to the scheduled delivery date of the first airplane on a continuation contract. At this point North American would order certain extrusions, forgings, castings, landing gears, pumps, and other long lead time items. While these items would only represent five to seven per cent of the total year's contract, they would give the manufacturer a five-month head start.

Until the start of this 16-month period, the USAF could still cancel out future production with no loss of funds. Between the start of this 16-month period and the start of the 10th month contract cancellation costs would still represent less than one per cent of a year's contract cost.

The accompanying flow chart, representative of North American's experience with the F-86, illustrates the manner in which the long lead time items are determined. • • •

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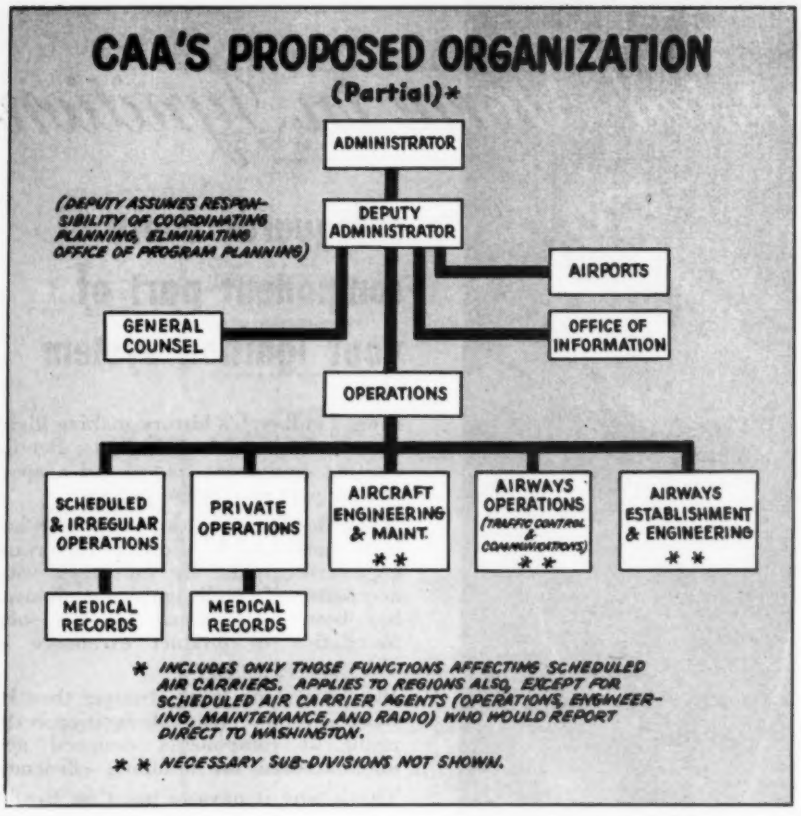
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More Action Due in CAA Shake-up

Air Transport Association provided 10-point program; eight points have been acted upon or will be soon.

AS THE Republican Administration's program of completely shaking up CAA's entire organization moves ahead, AMERICAN AVIATION has uncovered the master plan which has motivated the important changes made to date and which foreshadows many more to come.

This is the 10-point program for CAA reorganization presented to Under Secretary of Commerce for Transportation Robert B. Murray, Jr., at his request, by the Air Transport Association. Murray recently told a Washington audience that eight of the 10 points had been or would be put into effect, adding that the industry "would continue to hear of changes in CAA."

Here are the major points of ATA's proposals not yet implemented and on which action can be expected:

• **Complete reorganization** of CAA's engineering, maintenance, and operations divisions. ATA proposed the elimination of the Office of Aviation Safety and the Deputy, combining of aircraft engineering and maintenance, consolidation of the scheduled and irregular air carrier branches, and elimination of the special operations division.

• **Reduction in Washington personnel** by about 25% by the establishment of a maximum ratio of one Washington employee to every six persons in the field. At present this ratio ranges from 1:2.30 in Aviation Safety to 1:49.29 in Federal Airways.

• **Major expansion** of the CAA designee program, appointing carrier personnel to handle virtually all the work now done by CAA operations, maintenance, and engineering agents in issuing air transport pilot ratings to airline crews, conducting periodic proficiency checks, approving engineering changes and modifications, issuing flight engineer and navigator certificates, etc.

• **Establishment** of senior operations and engineering agents attached to each major airline (one of each for a group of several airlines in the case of small lines), who would be the direct contact between other CAA agents, the carrier, and the Washington offices, by-passing the Regional Administrator. These agents would be located at the home base of the airline with agents at the outlying points, such as a remote overhaul base, reporting to the senior agents.

• **Advancement of safety** through mutual cooperation of CAA, the flight crews, and airlines. Basic plea is for a working arrangement under which CAA agents or designees would discuss routine discrepancies (such as fueling violations, minor operational deviations, etc.) with the pilot and carrier *without filing a formal report with Washington.* At present, ATA claimed, pilots are discouraged from reporting valuable safety data by well-based fear that they will be charged with violations which become a part of their central records.

• **Consolidation** of international field offices, leaving the international (10th) region headquarters as it is. Specific proposals called for combining the Paris and London field offices and reduction in personnel; combining the offices in Lima, Peru, Rio de Janeiro, the Panama Canal Zone, and Buenos Aires. Also combining the Tokyo, Bankok, and Manila offices.

• **Elimination of** statistical reports, particularly those reports aimed at establishing work loads (i.e.—inventory of air carrier aircraft, monthly tower reports, and "Enplaned Passengers by Community" reports.)

• **Elimination** of the 9th region in Hawaii and reassignment of its activities to the combined 6-7 region.

Seldom if ever has the aviation industry been given the opportunity to make known its own requirements for orderly regulation and have them weighed seriously. Result was that ATA spent four weeks in discussions with 29 air carriers and combed its records of the past few years in documenting the case which it presented to Murray.

The program goes further than recommending changes. It also rejects

Safety Shake-up In Washington

First major shakeup in Washington CAA Office of Aviation Safety has come with appointment of W. H. Weeks, now head of aircraft engineering in Kansas City, and W. A. Klikoff, safety division chief from Los Angeles, to posts of chief and deputy chief, respectively, of the aircraft engineering division.

Week's appointment fills the job vacated by George Haldeman upon his assignment to head the CAA jet transport evaluation team. Omer Welling, who has been acting chief since Haldeman's departure, will take over Weeks' post in Kansas City.

changes which were rumored.

A good example of this is ATA's comment on the proposal to shift responsibility for flight checking navigational, approach, and landing aids to the airlines. In its report to Murray the carriers urged that this was not practical because of (1) the need for standard procedures and trained flight checking crews; (2) the assumption of liability involved in checks made by an individual carrier; (3) the high cost which would effect mail rates; and (4) the inability to assign proportionate responsibility to other non-carrier users.

No small factor in the Administration's acceptance of many of these ATA proposals which had been turned down repeatedly in the past: reduced costs. ATA showed that the consolidation of the sixth and seventh regions plus adoption of the 1:6.00 ratio of Washington to field personnel would eliminate 685 positions and save $3,300,000 annually.

• • •

New Tigers-Slick Staff Announced

A management staff of 16 members and a 15-man board of directors will run the firm to result from the proposed Flying Tiger-Slick Airways merger. They will be headquartered in Burbank, Calif. (Directors were listed in AMERICAN AVIATION, April 13.) The new management includes:

President, Robert W. Prescott (FTL); executive vice president, Thomas L. Grace (Slick); vice president-treasurer, Fred Benninger (FTL); and vice president-eastern division, William E. Hollan (Slick). These four will also comprise a management committee.

Others are: Vice president-transportation, William E. Bartling (FTL); asst. v.p.-transportation, Edward L. Morgan (Slick); vice president-sales, George T. Cussen (FTL); asst. to v.p.-sales, John E. Higgins (Slick); v.p.-engineering and maintenance, H. P. Huff (Slick); supt. of maintenance, Al Goldberg (FTL); v.p.-secretary, Joseph Grant (Slick); director of personnel, Arthur Meyer (FTL); v.p. and asst. to president, Lewis C. Burwell, Jr. (FTL); director of ground operations, Frank Lynott (Slick).

Asst. director of ground operations, Milton Montgomery (FTL), and general auditor, H. Angermeir (Slick).

O'Mahoney Joins NAA

Joseph C. O'Mahoney, former Senator from the state of Wyoming, has been appointed a director on the board of North American Aircoach Systems, Inc., a combine of large irregular air carriers. He will also serve in Washington as counsel and economic consultant to the company.

News Briefs

Work on a $3.5 million overhaul contract has begun at Aircraft Engineering & Maintenance Co., at Oakland, Calif. More than 60 **Fairchild C-82 Packets** are involved; work will take 10 months.

• •

Fuel costs are over 25% less on a routine Turbo-Liner flight from Indianapolis to Chicago than on a piston-engine airliner flight, and time is cut by 16%, according to **E. B. Newill,** general manager of G-M's Allision Division. The Turbo-Liner is now being used for transporting company officials, and in one 2½-day period made 27 scheduled flights, never more than 10 minutes off schedule.

• •

Six million dollars in new jet and reciprocal **engine business** has been received by Fairchild Engine and Airpline Corp.'s Engine Division at Farmingdale, N. Y. Guided missiles and long range bomber power plants are involved.

• •

President Eisenhower has nominated eight Air Force brigadier generals for temporary promotion to major general. Among them was Brig. Gen. **Sory Smith,** Director of Public Information, the first Air Force PIO officer to hold such rank.

The others were Brig. Gens. **Walter G. Bain,** Director of Procurement and Production, Air Materiel Command, Wright-Patterson AFB; **Ralph T. Swofford, Jr.,** Commander of the Air University's USF Institute of Technology, Wright-Patterson AFB; **Carl B. McDaniel,** Inspector General of the Air Training Command, Scott AFB, Belleville, Ill.; **John F. McBlain,** Director of the Secretary of the Air Force Personnel Council, Hdq. USAF; **Chester E. McCarty,** Commanding, 315th Air Division, FEAF; **Leland S. Stranathan,** Commanding, Field Command, Air Force Special Weapons Center, Albuquerque, N. M.; and **Richard A. Grussendorf,** Commanding, 10th Air Force, Continental Air Command, Selfridge AFB, Mich.

• •

Vice chairmen of the U.S. delegation to the **ICAO Assembly** which opened in Brighton, England, on the 16th are CAB Chairman **Oswald Ryan** and **J. Paul Barringer,** director of the State Department's Office of Transport and Communications Policy.

A Canadian affiliate of Piasecki Helicopter Corp. is being formed. Named the **Piasecki Helicopter Co. of Canada,** the affiliate will at first concentrate on supplying service and overhaul facilities for RCAF Piasecki helicopters.

• •

CAA has eliminated thirteen **Aviation Safety District offices** as an efficiency move at an estimated annual saving of about $100,000. Offices dropped are Mobile, Memphis, Orlando, El Paso, Syracuse, Buffalo, Baltimore, Roanoke, Clarksburg, Toledo, Elmhurst (Ill.) and E. St. Louis. Territories are being consolidated with other offices and one new ASDO will be located at Charleston, W. Va.

• •

Sperry Gyroscope Co. will soon take delivery on a **Sikorsky S-55 helicopter** for use as a flying laboratory.

FINANCIAL

Net operating income for U. S. trunk airlines for the quarter ended March 31, 1953, was **up 64.8%** over the similar 1952 period, reaching a total of $15.4 million.

• •

A chattel mortgage covering 20 of TWA's Lockheed Constellations has been satisfied. The mortgage, believed to be the largest in the transport industry, involved 14 banks and **almost $18 million.**

• •

A $5 million fine imposed by the Brazilian government on **Panair do Brasil** has been rescinded. Fine was imposed on Panair for having, over a six-year period, made duty-free fuel available to Pan American World Airways.

• •

TWA's financial position has been reversed from one of $53 million in debts and nine million in equity to $53 million debt and $53 million equity in the past four years, TWA president Ralph S. Damon states. Thirty million dollars of this new money was earned and retained, $14 million is new money.

• •

Cessna Aircraft's earnings for the six-month period ending March 31 were $512,574 on sales of $21,315,000. Backlog as of that date: $67 million.

Interview

with

Georges Hereil

President

International Association of Aircraft Manufacturers

Which Role for Europe's Manufacturers?

Georges Hereil was born in Paris on August 28, 1909. He began his carrier as a lawyer attached to the Tribunal de Commerce (Tribunal Court) of the Seine district.

In 1937, he was entrusted with the representation of the interests of Societe Liore et Olivier and Societe Aeronautique Française, two aeronautical concerns which had just been nationalized. In 1946, he became chairman of the board and general manager of the Societe Nationale de Constructions Aeronautiques du Sud-Est (SNCASE).

In April, 1948, he was designated by the French aircraft manufacturers as the president of the Union Syndicale des Industries Aeronautiques (Aircraft Industries Association of France), of which he now is honorary president. He was responsible for the organization of the air displays at Orly and Le Bourget and of the Aircraft Exhibitions of 1949 and 1951.

In cooperation with the late Peter Vos, of Fokker, he created, in 1950, the Association Internationale des Constructeurs de Matériel Aeronautique (International Association of Aircraft Manufacturers) of which he became president in 1952.

He is a member of the Economic Council of France.

Hereil's firm, SNCASE, is about to receive a large contract from Republic Aviation Corp.-International for F-84F parts (see page 17).

Q. How many fighter, bomber, and transport prototypes has France produced in the postwar period?

A. The total number of prototypes built in France during the postwar period is obviously very high. It has reached the figure of 109 aircraft, with a total weight of 610 tons. In England, 142 aircraft weighing 1380 tons were built, while in the U. S. 236 planes weighing 2640 tons were produced.

Q. Would you explain why such a large number of projects were undertaken?

A. At the close of the war, France took the natural decision to recapture its place in the aircraft manufacturing field. But just the same, as generals often think when making a war in terms of the preceding war, the French leaders picked up the technique at the stage where they had left it in 1939. Certainly they did not have the proper appreciation of the great technical advances made while France was occupied. The leaders of France therefore underestimated the necessary expenses. They believed that the French aircraft manufacturing industry would build, as it did during the prewar period, all types of aircraft which might be needed for the defense of the country.

Q. Was the brief communist rule of France a factor in the expanded aircraft production? If so, why were a number of the projects not abandoned after the short reign of this group?

A. The explanation is more of a technical than a political nature. The communists were in charge of the Air Ministry at the same time that General de Gaulle was head of the Government. Divergent political grounds were responsible for their respective actions, but brought about the same result: General de Gaulle was thinking of the rank of France and, at the same time, of the social problems of the maximum employment of available manpower. The communists were looking for supporters among the workers of the aircraft industry.

Both outlooks caused an important effort to be made in the field of prototype construction. Considering this background, one cannot help thinking that this may have been a wrong approach but that it was accomplished in good faith. After the computations and suppressions which were necessary during the testing of prototypes, one could finally retain a certain number of them as worth being built.

Q. It would appear that the productive capacity filled by prototype activity in recent years must now turn to other work. Is a leveling-out of French aircraft manufacturing likely now?

A. No industry can think of stabilization. Every aircraft industry must adapt itself to circumstances. Flexibility is the main quality of an aircraft industry. Also, the situation here today is very different and one can see that there is a better balance between the production of prototypes and production-line aircraft.

Q. How many persons does the French industry employ? To what extent is this number to shrink?

A. Total staff working in airframe manufacturing plants reached about 31,000, in engine manufacturing plants 14,000, and in equipment manufacturing plants 15,000. The grand total amounts to nearly 60,000 people.

Q. Have NATO and MSA "off-shore" procurement programs, prior to the Mystere order last month, had a good or bad effect on your industry?

A. While the manufacturing potential of the French aircraft industry exceeds the financial capacity of the country, there is no doubt that orders which could be carried out to the benefit of NATO and MSA would be most useful in

"International engine manufacturing company"

permitting our industry to play its role in the armament of the Western powers.

Q. Do you foresee additional MSA orders for French aircraft types already announced?

A. I am confident of the success of a number of French prototypes and hope that this will lead to the increase, by way of supplementary MSA orders, of French production lines.

Q. Would France have been able to sell recent military aircraft to other European or foreign nations at an earlier date if the uncertainties of MSA and NATO orders had not existed?

A. I do not believe so.

Q. As head of the International Association of Aircraft Manufacturers, would you say this is true of all of Europe's aircraft industry?

A. Definitely. One of the endeavors of our group is to divide the tasks between the different countries in order to fill the requirements from MSA and NATO.

Q. How many countries and how many companies are represented in the group of which you are president?

A. Membership in IAAM consists of the following countries: France, Italy, Belgium, Holland, Spain, Norway, and Denmark. Swiss manufacturers cooperate as observers within our association and the problem of their membership is presently being discussed. Swedish manufacturers are also discussing the possibility of joining our group, at least as observers.

Inside each of the member countries all aircraft manufacturing companies are represented. As soon as Germany is again authorized to build aircraft, its membership in IAAM will be immediate. Yugoslavia too will probably be interested in membership.

Q. England does not belong to this group. Why?

A. At the beginning of IAAM, Great Britain was asked to become a member of this association. The SBAC expressed sympathy for the newly born association but voiced the fear that this might be just one more association adding itself to the many already in existence throughout the world. This was in fact a misconception.

The Association, which represents Continental Western Europe, intends at present to keep this continental character. In this capacity we hope to maintain the best possible connections with the SBAC as well as with the American AIA, without raising the problem of either of these groups losing its individuality.

Q. Why isn't such an alliance pursued when so many of the individual companies of both groups exchange information and generally cooperate?

A. Great Britain wants, above all, to keep its independence in the aircraft manufacturing field, while Continental European countries are in favor of an integration of their efforts.

Q. What practical purpose has the IAAM served during its three years of existence?

A. The IAAM has solved or taken a stand on four important problems:

• **It has agreed** that, when licenses are bought from the U. K. or the U. S. by several member countries of IAAM, conversions in the metric system will be made only once and the cost shared by all those benefiting by these conversions;

• **It has created** a standardization committee;

• **It is studying** all technical and industrial problems faced by European countries in the framework of the European Community Defense Treaty;

• **It is planning** the formation of a European Research Company which would aim at the establishment of a common program for investments in the field of research and study. One of its first and most important projects would be the construction of a supersonic wind tunnel.

Q. What do you see as the major problems of the European aircraft industry in the coming year?

A. Major problems will be to turn out good aircraft, good engines, and good equipment. Above all, competition will have to develop more on an international than on a national basis. Overlapping and double expenses will have to be avoided between European countries in order to obtain a maximum efficiency.

The defense budget is weighing heavily on the shoulders of the European taxpayers, who simultaneously have to finance the reconstruction of property destroyed during the last war. Therefore it is necessary to make an intelligent effort so that, with a reduced expense, maximum results may be obtained. This can be obtained only through a closer cooperation. In addition to the pooling of all research media, as mentioned above, I am also in favor of the constitution of an international engine manufacturing company grouping, more particularly the efforts of France, Germany, and Italy.

International Production Line

We have launched the idea—which is now being realized—of an international production line for Sikorsky S-55 helicopters for which we have obtained license rights from Sikorsky. United Aircraft Corp.'s management has been most helpful in this.

In this way, with each country producing the same component in greater numbers, we are broadening the market and decreasing our costs. No country can cover the full scale of all aeronautical needs except in a regime of autocracy. I feel sure that the aircraft industry is one of the elements which it is easiest to unify in Europe in making the industries of the European countries complementary, not competitive.

Q. To what extent will a common European defense command affect your group's planning and production? What change must be made to meet this?

A. Our association has already taken a stand to secure the representation of all European industries before the unified command and discuss all the methods of realization of the programs which it will establish.

We feel strongly that the manufacturers should be asked to cooperate with the EDC program, with an exchange of views as frank and as thorough as possible between its administration and the manufacturers who are federated in our association.

Q. Is there much concern among the smaller countries, such as Holland, that they may lose out as a result of this group activity?

A. Holland certainly is one of the most "European" countries, and I do not believe that such projects should raise special fears; Dutch technicians and workers are first class and are to play an important part in all European aircraft manufacturing organizations.

Allow me, here, to pay a special tribute to the farsightedness of Peter Vos, of Fokker, a great Dutchman who was as well a great European and a great friend. Vos, whose unfortunate death earlier this year was a great loss to the industry, was the first chairman of the Association.

Q. What protection are these small countries likely to be offered?

A. Since each country shares the expenses of the

"Closer ties between U.S. and European manufacturers"

European Defense Community, it should receive an insured part of the orders which may be made for common account. This is the best guarantee.

Q. Is there any logical or practical manner in which the European aircraft industry can compete effectively with the much larger production potential of the U. S. and Britain?

A. I feel confident that with the agreement of all the industrialists of the European aircraft industry we shall not make too poor a showing beside the American and British industries.

Q. Do you see a market in which the European aircraft industry might become specialized?

A. The aircraft manufacturing industries of Great Britain, the U. S., and Europe must be directly concerned with the protection of their own lands, in conformity with their own geographical location.

For the British, task Number One is interception, task Number Two is anti-submarine warfare, and task Number Three is long-range fighter, tactical aviation, and ground support.

For the U. S., task Number One is long-range action, task Number Two is interception, task Number Three tactical ground support.

For Europe, Number One is tactical ground support, Number Two interception. In the civilian field, medium-range airline transports for under-developed areas in Africa are one of the targets of the European industry. Thus specialization of the European industry through the peculiar character of its military and civilian objectives can be foreseen.

Q. Does not the relative weakness of the European aircraft engine manufacturing industry handicap the aircraft industry as a whole?

A. This is the very reason why I have proposed the creation of an international engine manufacturing company.

Q. Other than the French ATAR engine, is there any promising jet or rocket engine in development in the European community of manufacturers?

A. There is the SNECMA "Vulcan," whose power will be much higher than that of the ATAR, and there is the very promising work which has been accomplished in the field of rockets.

Q. Will the revival of the German industry provide an answer to this engine problem?

A. I believe that the participation of the German industry in the international engine manufacturing company will constitute one element of the solution.

Q. Will the revival of the German industry prove an asset to your group, or will its productive capacity prove detrimental to balanced strength among the other countries?

A. The problem is this: as far as airframes are concerned, Europe is already over-equipped. A special effort of Germany in this field is, therefore, useless. Its manufacturing genius ought therefore to be spent in fields where Europe does not actually cover its own needs; first, the field of engines, through a bold and efficient integration within a company enjoying the backing of the different European countries; then, in the field of accessory and allied equipment, whose number and cost grow every day and which play a more and more important part in the finances of the aircraft industry. I do not believe in the long-range possibility of maintaining, within tight partitions, lively aircraft industries in each of the countries of Europe.

Q. Are there any signs of strengthening the intercompany cooperation with U. S. manufacturers?

A. The cooperation which is desirable, on an individual basis, with U. S. manufacturers is extremely important and I am very happy that, day after day, closer ties are being established between U. S. and European manufacturers—especially with French manufacturers.

Q. What is the purpose of the Paris Aircraft Exhibition?

A. The first Paris Aircraft Exhibition took place in 1909. This year, the 20th Exhibition is taking place. A feature of these exhibitions is that they are opened to all countries of the world. The international character of the Exhibition was established as far back as 1909.

The target is a multiple one: to allow the comparison of aircraft built throughout the world; to enable the public to realize which role France can play in the international competition; and to create a spirit of enthusiasm.

Q. What is its approximate cost and how is it financed?

A. More than $275,000, all of it being privately financed. Never, since 1909, has our Paris International Exhibition received the least subsidy from the Government.

What Paris Will Show

Q. What developments will be on exhibition at Paris this year to mark European aircraft advances since 1951?

A. The "Mystere" series; the miscellaneous jet trainers exhibited by European countries; transport aircraft; and also the "Baroudeur," a ground support aircraft more particularly designed to fit European requirements, which takes off from a carriage and lands on skids.

Q. Why is there so little American interest and participation in the Paris show?

A. Interest and participation builds up over a period of time. The same was true of British participation which, from one Exhibition to the other, becomes more and more consistent. I do not doubt that in the near future U. S. participation will be extensive.

Q. How will France's small private companies prosper under advancing nationalization of European nations?

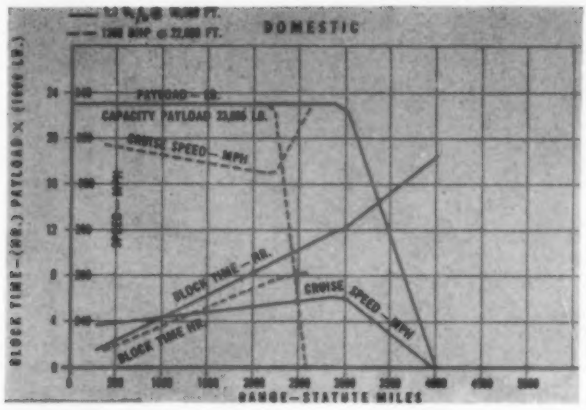
A. French privately owned firms live on good terms with the nationalized concerns. They have a tendency to specialize in the construction of prototypes and to call, for production-line orders, on the cooperation of nationalized companies whose mass-production potential is more important.

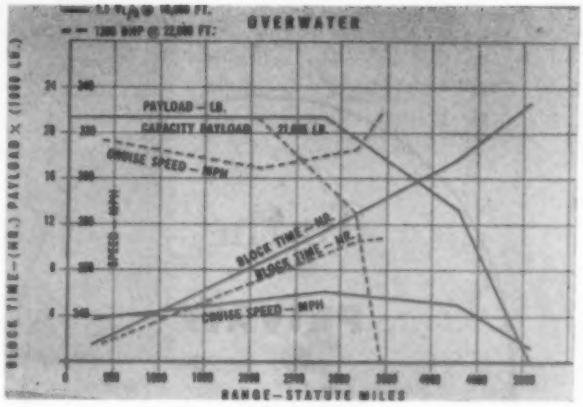
There exist, between privately owned and nationalized companies, a healthy spirit of competition and a reciprocal will to live together.

Q. Would you describe the productive capacity of the European industry: number of companies, engineers, workers, productive plant capacity, pounds of output last year, raw material situation, etc.?

A. In all the countries of Continental Europe which have an aircraft industry, the total number of workers in this industry must amount to close to 90,000, of which 60,000 are in France. As a matter of fact, Western Germany is not included in this figure, but its share is likely to be a substantial one as soon as it joints the community. Besides, this industry could be expanded, if defense or civilian needs of the 210-million-inhabitant-community which it represents should warrant such an expansion.

As far as raw materials are concerned, the situation of the European aircraft industry is good, for light metals as well as for steels, and even for plastics, the use of which has begun to increase in the industry. • • •





PAYLOAD-RANGE PERFORMANCE of the DC-6C is illustrated in the charts above, showing both domestic and overseas versions.

Passenger-Cargo Flexibility Marks DC-6C

Movable bulkheads, folding seats, other features speed conversion from freight to passengers.

By Fred S. Hunter

A NEW ENTRY in the DC-6 line—a convertible combination cargo coach to handle non-standard traffic problems—has been developed by Douglas Aircraft Co., which is now submitting it to prospective airline buyers. The new model is designated the DC-6C.

Incorporating the airframe and the power plants of the DC-6A Liftmaster, the new DC-6C is being presented by the pioneer transport manufacturer as a two-job airplane which will easily change over from week-end passenger traffic to mid-week freight.

In minutes, Douglas reports, the DC-6C interior can be changed from a configuration carrying 76 passengers and their baggage (plus 2400 pounds of cargo) to an interior carrying nearly 13 tons of cargo. Or it can be converted to a number of other cargo and passenger combinations to fit various load circumstances.

The following are the flexibility features incorporated in the new DC-6C design:

• **Lightweight** two-and-three abreast folding seats fold up against the wall when not in use. These seats also serve as protection for sidewall and windows during cargo operations.

• **Movable bulkhead** may be positioned at any one of four stations to separate passengers from cargo section and allow for variations in passenger and cargo load factors.

• **Lightweight folding hat racks** fold compactly against the fuselage when the airplane is used for cargo.

Tourist or coach-type buffet facilities for storage and dispensing of food and liquid are located forward of the rear cargo door and may be completely removed when the plane is to be used only for cargo.

A large removable coat room with facilities for storage of life rafts and other emergency equipment is located at the aft cargo door and may also be removed when the plane is to be used for cargo only.

Entire cabin is lined with laminated fiberglass panels which are tough and long-wearing and eliminate need for removable lining which would have to be stored when not in use.

Carpeting in the passenger compartment is sectioned to correspond with the four positions of the movable bulkhead, making possible quick conversion.

Cargo tie-down rings form a 20″ grid pattern over the entire floor area in the cabin. When all passenger seats are folded and buffet and coat room removed, the entire cabin may be used for cargo. The cargo floor is moisture proof to facilitate cleaning.

Being an adaptation of the DC-6A, the new DC-6C has that aircraft's large cargo doors and heavier cargo floor. The cabin is pressurized and incorporates the square, panoramic windows of the DC-6B. The DC-6C has eight auxiliary exits. The standard twin aft lavatories, with external servicing provisions, are permanently installed just forward of the pressure bulkhead in the aft cabin.

• • •

DC-6C Data

Max. take-off weight			107,000 lbs.
Max. landing weight			88,200 lbs
Max. zero fuel weight			83,200 lbs.
Fuel capacity	Systems are available from 3,992 gals. to 5,526 gals.		
Engines	Pratt & Whitney R-2800-CB17		
Engine ratings			
Take-off power—low blower	Bhp	Rpm	Altitude
With A/W injection	2500	2800	2500 ft.
Without A/W injection	2200	2800	4500 ft.
Max. continuous power			
Low blower	1900	2600	7000 ft.
High blower	1750	2600	13500 ft.
Propellers	Hamilton Standard 43E60-6895A-8		

PERFORMANCE

Demonstration gross weight	95,000 lbs.
With max. cruising power	
Speed—High blower critical altitude	307 mph
High blower critical altitude with ram	22,400 ft.
Power per engine	1,200 bhp
Speed—Low blower critical altitude	303 mph
Lower blower critical altitude	17,400 ft.
Power per engine	1,200 bhp
Rate of climb, max. cont. power	
4 engine. Max. R/C at sea level	1,260 fpm
4 engine. Max. R/C at 20,000 ft.	440 fpm
Take-off and landing at sea level	
CAA take-off runway length at max. take-off weight	6,160 ft.
Landing distance from 50-foot height at max. landing weight	3,090 ft.

To the **PRIVATE** plane owner:



A spark plug, too, is known by the company it keeps!

You, as a private plane owner, can make a simple test to determine the best spark plug. Ask: "*Who uses them?*"

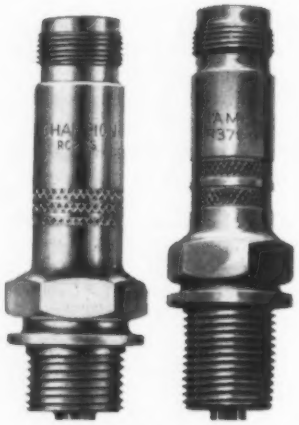
So far as Champion Aircraft Spark Plugs are concerned, the answer is:

—Every major domestic scheduled airline.

—A majority of overseas airlines.

—A very high percentage of our military aircraft.

—So many quality-conscious owners and pilots in private and corporate aviation, that Champion is the most popular aircraft spark plug on the market—year after year.



The RC26S and R37S-1 are the most widely used of Champion's many types of aircraft spark plugs.

It is this tremendous popularity, and the great production volume that it permits, that enable Champion to maintain extremely low prices on top quality spark plugs.

It is a safe conclusion that once you have flown with Champions you will never again be completely satisfied with any other spark plug.

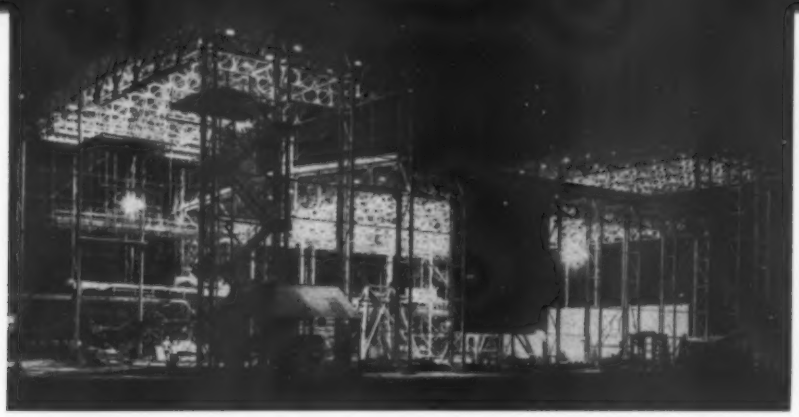
CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO

CHAMPION IS A PRIME SUPPLIER TO THE U. S. ARMED FORCES

GET DEPENDABLE

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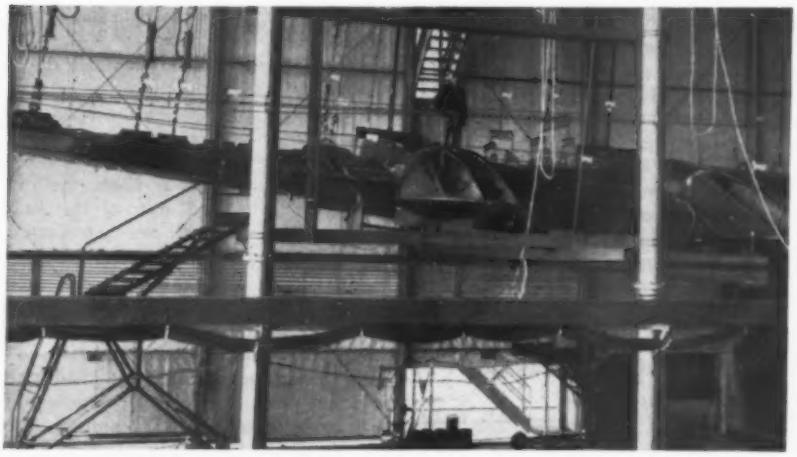
CONVAIR'S new $369,000 static test facility has now been put into operation testing Navy flying boat structures.

New Convair Facility Tests Flying Boats

Convair's San Diego division has completed erection of a $369,000 concrete and steel static test facility for destruction testing of structural components of Navy flying boats. Fixture has been placed in operation for testing wing sections of R3Y turboprop flying boats being built for Navy by Convair, and pressurized hull of R3Y will soon undergo simulated 30,000 foot altitude load tests in the new facility.

Test chamber is built on three-foot-thick concrete foundation measuring 100′ x 196′. Steel columns support large steel trusses which are used to apply loads ranging from 60,000 to 1,000,000 pounds to test structures from any direction. With hydraulic jacks and load distribution devices, Convair's new test equipment permits duplication of every flying or landing load condition an airplane is likely to encounter.

Facility will produce wing tip deflections of more than 10′ for testing wing sections of large airplanes. Accommodations for recording equipment and engineering observers are provided in a separate building. • • •



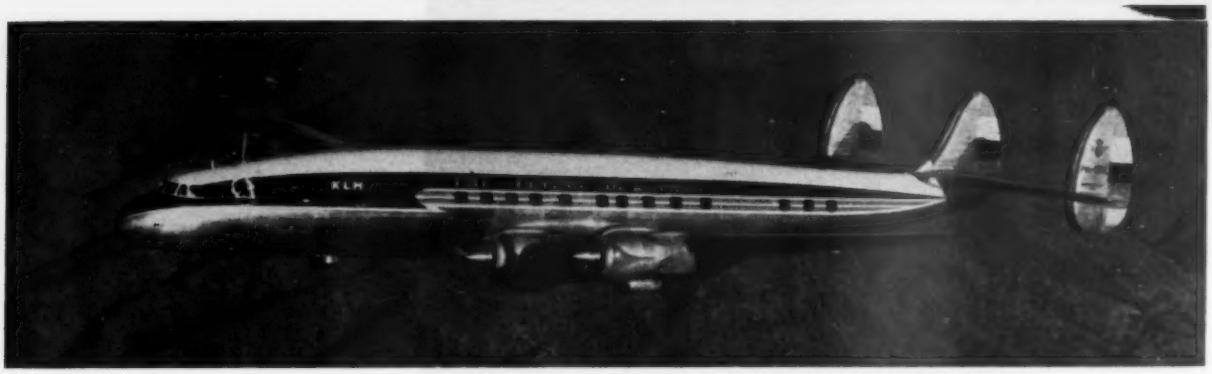
HERE A FLYING BOAT WING is put through static tests. Hydraulic jacks apply heavy loads and strain gages transmit intelligence to remote test instrumentation.



HYDRAULIC JACKS apply loads simulating flight conditions such as rolling-pullout, symmetrical hull landing, dynamic landings, etc.



NERVE CENTER of the test facility is the test house where loads are controlled and effects measured.



KLM ROYAL DUTCH AIRLINES accepts delivery on the first production Lockheed L-1049C following its certification by CAA on June 15 after a record 48-day test program. It is the first transport ever certificated with the new Wright R-3350 Turbo-Compound engine rated at 3250 hp. Top speed is 370 mph, maximum cruise 335 mph.

Turbo-Compound Connie Certificated

THE LOCKHEED L-1049C Super Constellation, powered by four Wright R-3350 Turbo-Compound engines, has completed a record 48-day series of certification tests and been certificated for operation at 133,000 pounds gross weight, 3000 pounds above Lockheed specification guarantees.

Certificated on June 15, the L-1049C is the first commercial transport to be approved using this new type powerplant, which will boost performance of the 57-passenger plane to provide a maximum cruising speed of 335 miles per hour and top speed of 370 mph.

The first of 13 L-1049C's ordered by KLM, which will be followed by 88 other Super Constellations on order by 16 airlines, the Connie was scheduled to fly to the airline's base in Amsterdam immediately for European tours lasting through July. Similar U. S. tours of the plush aircraft, with an interior designed by Henry Dreyfuss, will be made in August and September.

Claiming flight test performance "better than guaranteed in every respect," Lockheed's vice-president of engineering, Hall Hibbard, noted that at the maximum landing weight of 110,000 pounds it can clear a 50-foot obstacle and stop, using brakes only, in 3400 feet. Minimum runway length is 5665 feet, nine per cent better than specified. Normal take-off distance with full gross weight is 3380 feet with a 5950 foot runway required.

The L-1049C, which will climb at 240 feet per minute with two engines inoperative, has been certified with both Hamilton Standard and Curtiss-Wright propellers. • • •

Post Office Pushes for Negotiation

THE NEXT several months will see a Post Office Department push for authority to "negotiate" mail pay with airlines. The PO promise: with negotiated rates, a lot of mail now going by surface can be switched to air, probably through an expedited mail plan.

The PO's new Republican leadership is taking seriously its orders from President Eisenhower: improved service, lower rates, and decreased subsidies. This, plus the fact that John Allen, Assistant Postmaster General-Transportation, is looking over his department with the eye of a general traffic manager (a post he held with Sears, Roebuck) can mean the biggest changes in air mail since passage of the Civil Aeronautics Act.

Here's how PO thinking shapes up:

• **Get air mail subsidy out of the PO budget.** A reorganization plan to transfer such payments to CAB is before Congress.

• **An expedited mail plan,** which would mean big volume increases, is looked upon favorably—but not with CAB setting "fair and reasonable" rates, as at present. The PO wants airlines to come to it as "customers." Pay would be negotiated under a system similar to that of the Interstate Commerce Commission. ICC sets rate levels on surface mail from which the PO can negotiate downward (and sometimes upward, it is claimed). The Civil Aeronautics Act would have to be amended to give it this power.

• **The PO isn't convinced** that it should pay more for mail than other airline users pay for freight and express.

• **Much more mail will be moved** after the close of the business day, some of it probably in planeload lots.

• **Local service and helicopter lines** won't be looked upon too favorably, except where ground transport is very poor. More short-haul mail will move by truck.

Airlines can be expected to oppose any plan to negotiate rates, on grounds that it would be similar to the pre-CAB bidding system which resulted in carriers submitting very low mail bids in order to get key routes. They will maintain that volume mail rates or other special pay methods can be made effective by altering the present law.

An expedited mail system can result from the fact that the railroads, faced with big passenger service deficits, are eliminating unprofitable trains. In addition, they are almost certain to ask for another mail pay boost. Thus, the PO may be able to send more of this railroad mail by air—with negotiated rates.

(Under Canada's expedited system, letters at four cents surface rate go by air on a space available basis, where they can be expedited. The sender is given no assurance that his letter will move by plane. Regular air mail rate is seven cents. Another method would be to have one first-class postage rate of five cents, for example—except possibly for local mail—with all letters traveling over a certain distance going by air.)

On a route where there are three or four airlines, a negotiated pay system could result in one carrier handling all the mail. However, the PO points out that under an expedited plan there would be so much more mail that other airlines would have plenty of volume elsewhere on their systems. Even though rates might be lower, everyone would be better off, it claims.

PO reasoning on shipping more mail after the close of the business day is this: it's uneconomical to spread mail out over a large number of schedules throughout the day. It keeps mail trucks on the move between post offices and airports with relatively small loads.



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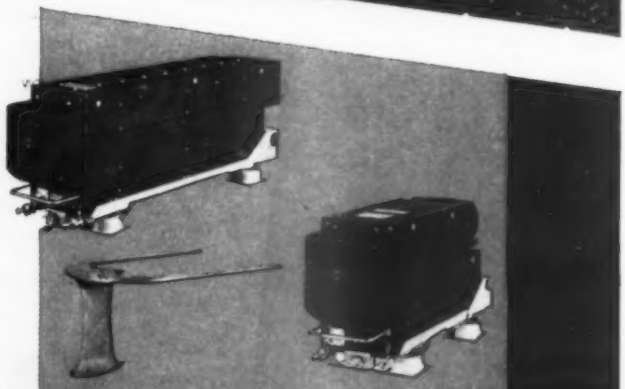
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A MILITARY COMMENTARY

The Security-Conscious Mr. Wilson

IT IS SOMEWHAT IRONIC that Defense Secretary Charles E. Wilson, who became so incensed at a columnist revealing the breakdown of the new defense budget that he ordered a thicker curtain of secrecy lowered over Pentagon activities, has been responsible, directly and otherwise, for the revelation of dozens of pieces of information which the Russians will find highly useful.

There is no doubt that the Wilson defense of the revised budget, coupled with the testimony of Gen. Vandenberg, Air Secretary Talbott, and others, has filled in some of the gaps the intelligence agents in the Kremlin had been seeking. The "official USAF statement" to Rep. Samuel W. Yorty and the Defense Department's authoritative answer have also "given aid and comfort to the enemy." Examples include:

• **Makeup of both** the old 143-wing AF and the 120-wing "interim" goal, telling Georgy Malenkov and Co. that Gen. Curtis LeMay's Strategic Air Command will have 52 rather than 57 wings by the end of 1955, at the same time revealing that Tactical Air Command will end up with 25 instead of 40 wings on the same date. None of this information had ever been officially revealed.

• **Declaration that jet production** has been so slow that "except for three Lockheed F-80's in storage," the Air Force has no jet-powered aircraft in reserve. Indication also that there are still about 1000 Boeing B-29's in storage.

• **The number of planes** now in operation, including 25,000 by the USAF, 9941 by the Navy, three tactical Marine air wings. It was also revealed that Marine wings have about triple the number of planes in a USAF fighter wing, e.g., presumably about 225 aircraft, compared with 75.

• **Present and future status** of the AF, including the fact that 10 wings out of the present 103 exist on paper only and have no aircraft.

• **Military manpower** in the nation's air arm (1,200,000 at present), includes 980,000 in the USAF.

• **Elimination** of 1150 USAF transports, trainers, liaison planes, and helicopters in the 30 months ending December 31, 1955.

• **A decision not to place a planned order** for 200 Boeing B-47's in fiscal 1954, which were to have been used for training.

• **Elimination of 700 supporting Navy planes** in 1954-55, with a slowdown in Navy modernization by 400 aircraft in the same period. Also the revelation that the Navy would receive more than 3000 new planes next year.

• **A report that the AF would get** 2300 more planes in fiscal 1954 than in 1953, the Navy 800 more.

• **The length of time** it takes to get certain combat planes delivered after order placement: B-52, 34 months; B-47 and F-101, 26 months; F-100, 25 months. Also, samples of the number of months some planes are behind schedule: B-52 and F-84F, four months; B-57, six months.

• **Revelation** that the U.S. hopes to expand B-52 output and that a second source plant is being considered.

• **A statement that the USAF now has** 156 airfields in the U.S. from which it can operate, many of them capable of handling two or more wings.

• **A declaration that aircraft deliveries** to the AF have "slipped" an average of 12% in the last year, and that combat plane output fell short by 22%.

• **In addition to the Air National Guard** and Air Reserve (which will have 22-plus wings in 1955) 60% of all USAF planes and 6484 Navy and Marine aircraft not assignable to wings are available for air defense.

• **A statement** (by Rep. Dewey Short after a White House briefing) that the number of "fully equipped" USAF wings went from 47 on January 20 to 73 in mid-May and that 20 more would reach that level in two to three months.

These instances are by no means all of the bits and pieces of information which Russian intelligence agents will glean from sitting in on the open budget hearings and reading the printed testimony in full when it is made available. It is not very hard to picture copies of the presentations by Wilson, Talbott, Kyes, Vandenberg, and others finding their way to the Kremlin in diplomatic pouches, where analysts of U.S. air power will be able to pinpoint possible deficiencies, thus revising earlier estimates of the threat the Russians face from SAC, and giving the Russian Joint Chiefs of Staff an up-to-date analysis of U.S. offensive and defensive air strength.

The merits of an open Senate hearing on the reductions in the USAF budget are obvious, because the American people thus get an opportunity to hear both sides of the issue before making up their minds. But the reporter sitting in and listening to the apparently classified information being thrown out for all, including the Russians, to hear and read cannot help but wonder whether a little more of the data should not have been given in executive session.

In view of the data presented during the hearings, it will certainly be difficult for the Defense Secretary to accuse the Pentagon press corps of security violations.

. . . Robert M. Loebelson



REPUBLIC F-84G Thunderjet is the standard Belgian Air Force tactical fighter. Three squadrons of Thunderjets are based at Florennes in the southern part of Belgium

Belgian Air Force: Half Way to Target

Sixteen squadrons are now operational out of a goal of 32; split evenly between defense, ground support.

By JEAN-MARIE RICHE

THE BELGIAN AIR FORCE today represents one of the most efficient air arms in the NATO structure. Although, like other continental European countries, Belgium's main NATO assignment is to furnish ground forces, the Belgian Air Force has important roles to fill in the support of the ground forces of the Central European Command and the air defense of its communications zone.

Thus the Belgian Air Force is about 50% a defense unit and about 50% a ground support force, with a small complementary transport organization. The defense force primarily comprises two wings of Gloster Meteor 8 day fighters, which are to be replaced by Hawker Hunters. Like the Meteors, the Hunters will be built jointly by the Belgian and Dutch aircraft industries.

The present night fighter squadrons are equipped with de Havilland Mosquito 30's and Gloster Meteor NF 11's. More modern equipment (probably the Gloster Javelin) and additional squadrons are required.

The tactical units of the Belgian Air Force now comprise two wings equipped with Republic F-84G's (Lockheed T-33's are used as trainers in these units). The transport squadrons comprise one recently equipped with Fairchild C-119F's and one with miscellaneous aircraft (including C-47's, Avro Ansons, etc.). An additional C-119F squadron is expected to be formed next year. The Belgian Air Force has also ordered a number of British-built twin-engine Percival Pembrokes, which will be used for survey and light transport work.

At the moment the Belgian Air Force has the strength of 16 operational squadrons compared with six in 1950 and a target quantity of 32. Thus the Belgian air arm is still very much in the process of expansion. In keeping with the aircraft build-up, the present personnel strength of over 1,000 officers and 20,000 men will be increased. Selective service recruits form few of the Belgian Air Force's pilots; most flying personnel are career men with a term of duty of at least five years.

Training of fighter pilots takes place both in Belgium and in the United States, and at the end of March, 1953, pilot trainees totaled 560. Cadets sent to the U. S. under MDAP are given an initial training of 25 hours on light aircraft before being sent across the Atlantic. Those pilots who undertake all their training in Belgium (there are 350 of such trainees at present) receive their initial training on de Havilland Tiger Moths or Belgian-built S.V.4 Stampes and then move on to North American T-6's. Before converting to jets they fly for 80 hours in Spitfire piston-engine fighters.

Generally the Belgian-trained pilots are assigned to defense squadrons, whereas the U. S.-trained men go to tactical units.

Belgium will gradually become independent of the United States for pilot training. At present the principal factor hampering development of training activities in Belgium is the poor flying weather that prevails (an average of only 180 days each year are suitable for flying). To overcome this difficulty basic training is being transferred to the Belgian Congo where good flying weather is available most of the year. The Belgian Air Force's advanced flying school is scheduled to be transferred to the Congo this fall.

There are no problems regarding the training of ground personnel—the capacity of the Air Force's Technical School has been developed and an auxiliary establishment already exists in the Congo.

As in other NATO countries, the Air Force's training program is an international rather than a national one. Personnel are sent to Dutch, French, and British schools, as well as to establishments in Belgium and the United States. There are several RAF and USAF officers attached to the Belgian Air Force and there is a considerable amount of liaison with other NATO air forces.

The Belgian Air Force's overhaul work is partly undertaken at the central overhaul base at Evere near Brussels, and partly by civilian overhaul companies: Sabca and Avions Fairey for airframes and FN for engines.

Although operating only about 300 combat aircraft, the Belgian Air Force today forms the nucleus of an important part of the integrated NATO force. With its obsolete equipment being replaced by modern aircraft, it is growing into one of the most effective fighting forces in Europe. • • •

IAM, UAW Sign Cooperative Agreement

CIO-Autoworkers president Walter P. Reuther and AFL-Machinist head Al J. Hayes have jointly announced a new agreement which not only strengthens the no-raiding pact in effect between the two aircraft unions but also calls for closer cooperation in collective bargaining and strikes.

The four-year-old no-raiding agreement will be enforced in "language and spirit," the two union leaders said, and both parties agree not to try to organize a plant which is already organized by the opposing union or to use charges of "communism, racketeering, company unionism, back-door dealing, racial prejudice, unwarranted or unnecessary strikes, excessive initiation fees, dues, or assessments" to gain an advantage in organizing.

In dealing with companies where both unions are represented (e.g., Douglas, General Electric) a six-man joint committee will be established "to coordinate collective bargaining procedures and relationships."



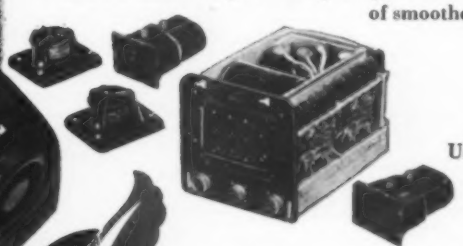
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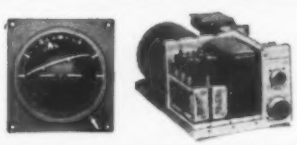
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FAIRCHILD POWER for the RYAN FIREBEE

JET POWER to send a remote-controlled, high-altitude missile streaking across the sky at near-sonic speeds called for a new concept in powerplant design.

Fairchild met the challenge with the J-44 turbojet engine. It had to be extremely compact—yet provide more thrust than any engine of its size ever developed. It had to be expendable for warfare—yet quality-built for frequent re-use in research and training after parachute recovery.

In one application recently revealed, Fairchild's J-44 provides the power for the Firebee, a target drone with fighter plane performance, made by the Ryan Aeronautical Company.

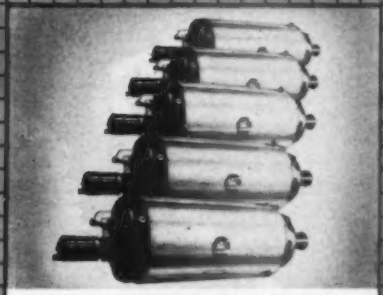
TIME WILL TELL of the expanding role in the nation's guided missiles program, in light aircraft and as a supplementary powerplant in large aircraft of this engine concept that *had to be different . . .* another example of the design, development and production facilities of Fairchild fulfilling specialized power requirements.

J-44 SPECIFICATIONS

Announced thrust	*1000 lbs*
Weight	*300 lbs*
Length	*72 inches*
Diameter	*22 inches*



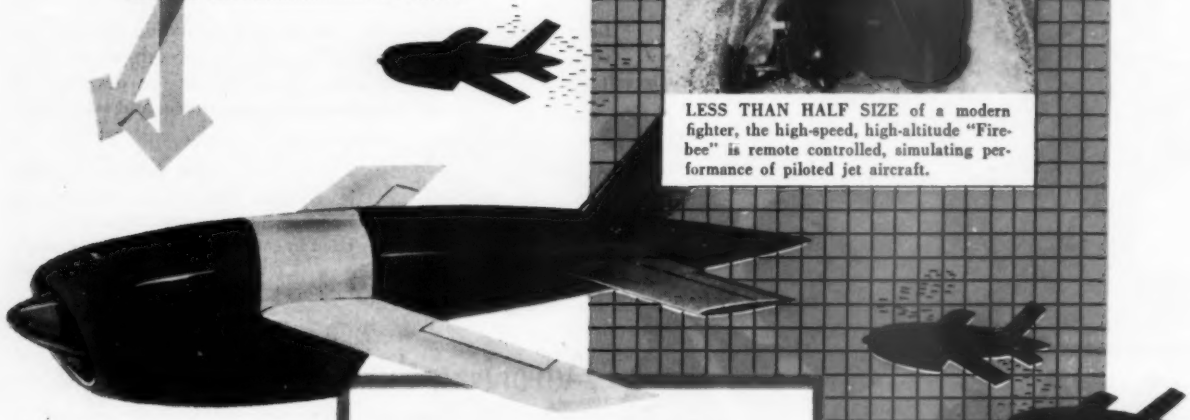
ACCESSORY SECTION containing essential controls, is quickly removed and replaced without special tools.



ONLY 72 INCHES LONG and weighing 300 pounds, the J-44 has varied applications in the nation's guided missiles program as well as in piloted aircraft.



LESS THAN HALF SIZE of a modern fighter, the high-speed, high-altitude "Firebee" is remote controlled, simulating performance of piloted jet aircraft.



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SEATS USED BY NORTH AMERICAN in its experimental DC-4 were manufactured by Burns Aero Seat Co. All fold flat, as shown above.

North American Tries Rear-Facing Seats

Public approves, non-scheduled carrier finds; first DC-4 flights may lead to fleet conversion.

THE LIGHTWEIGHT, high-density seats developed by Burns Aero Seat Co. for North American Airlines' rearward-facing experiment are symmetrical seats which can be mounted either forward or rearward. They can thus be turned around and re-installed in the conventional manner, if necessary.

Unless there is an abrupt switch in later expressions of passenger opinion, however, it looks as though the non-scheduled carrier will leave the rearward-facers in and give serious consideration to following suit with its other DC-4's.

North American's executives admit to astonishment over the early public reaction, which was overwhelmingly favorable. R. R. Hart, general manager of North American's operations, took up a position in the cabin of the test airplane when it was loading for its first trip out of Lockheed Air Terminal, geared to do a defensive selling job on passengers, whom he had expected would object as soon as they saw they would have to sit backwards. He reported not a single complaint.

Of approximately 150 questionnaires returned by passengers on the airplane's first two trips, one each way, only two expressed dissatisfaction with the seating arrangement. There were a few non-committals, mostly from first riders, of whom North American still has a substantial percentage, but the remainder all put their stamp of approval on the innovation.

While highly gratified, North American's management is not being stampeded into unwarranted action by the initial results of its $15,000 test installation, which will have netted the carrier a million dollars worth of publicity, if nothing else.

On the basis of the early passenger reaction North American has re-confirmed its original decision to put rearward-facing seats in the two DC-6B's it has on order and has made a verbal committment to the Burns company for sets of 102 seats for each ship. Final order, however, will await conclusion of the survey.

Seat builder Steve Burns predicts ultimate widespread changeover to rearward seats in most high-density aircraft, but expects the change to come slowly.

"Airlines generally will sit on the fence for quite a long time, but eventually I think they will come to it," said Burns.

Less enthusiastic are aircraft manufacturers, although welcoming the North American experiment as an important step toward resolving the issue.

"Passengers would be three times safer if they were to lie down," observes C. L. "Kelly" Johnson, Lockheed Aircraft Corp.'s chief engineer.

Both Douglas and Lockheed are installing rearward-facing seats stressed for 16 and 20 g loads in military transports now going to the Air Force and to the Navy. The manufacturers just hope the planes never will be involved in 16 or 20 g accidents.

"If the same effort were put in

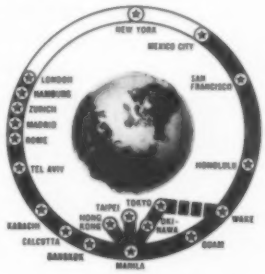


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DOUBLE SEAT weighs 26 pounds per passenger place, an increase of only 1½ pounds per passenger over standard units. All the North American seats can be reinstalled facing forward.

strengthening forward seats they would have the equivalent safety of the rearward seats," said Johnson.

The Douglas theory of seat safety puts fundamental emphasis on tying the passenger down properly. Tests on the same Northrop track at Edwards Air Force Base that revealed the extreme forces rearward-facing passengers are able to withstand also disclosed that the human body also can sustain surprising forward loads.

Although they were built specially for the DC-4 experiment, North American's seats also were designed for potential use in the Douglas DC-6. Approved under TSO-C25, the seats are approved for the following loads: Downward, nine g's; belt, nine g's; backward, six g's; upward, two g's; sideways, 1½ g's. Essentially, this means approval for nine-g forward facing loads and six-g aft-facing.

Built for the familiar high-density configuration of five abreast, overall width of the double seats is 41″ and that of the triple, 60½″. This provides an effective seating width of 18″ and leaves an aisle width of approximately 14½″.

Weight is 26 pounds per passenger place, an increase of about 1½ pounds over single high-density seats designed for forward installation.

Most important of the design improvements is an underseat clearance of 14″, which permitted North American to space its seats at 34″ in the airplane.

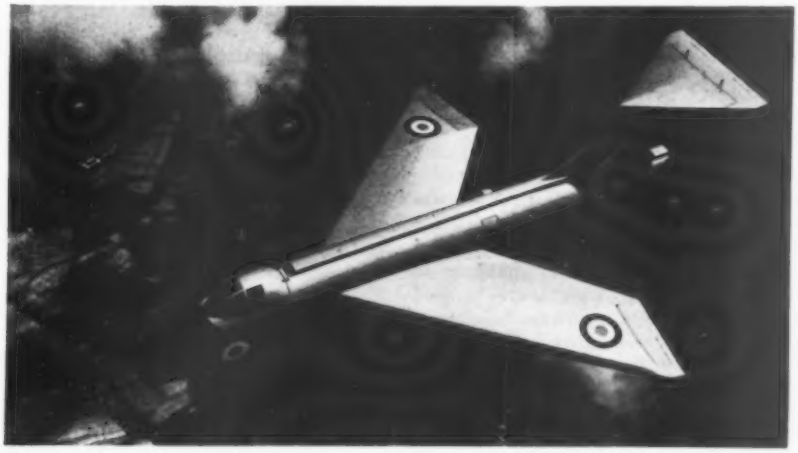
This spacing in turn enabled the carrier to install the same 80 seats as in its forward DC-4 configurations. Without this higher seat for necessary leg room, a rearward-facing installation would have involved a revenue penalty in the loss of a row of seats.

• • •



First good look at the Navy's McDonnell XF3H-1 Demon comes in this unretouched photo. The Demon is slated for carrier suitability trials at Patuxent, Md., this summer. Performance figures and other views of the fighter are still classified.

The Military Scene



Latest view of the Short S.B./5, shown with its adjustable-sweep wing set at 50°. Later experiments will investigate flight characteristics with wing set at 60° and 69°. Tail plane position can also be varied.



Four-bladed Aeroproducts propellers get a one-engine work-out during flight tests of a Fairchild C-119G Flying Boxcar. The recently adopted propellers were chosen to increase safety and boost performance.



EMERGENCY EXIT is blocked by seat which was pushed forward when Convair 240 crashed. Anchorage failures were common.

Crash Study Highlights Seat Problems

Seat belts stand up well, but anchorages fail in accident studied by Cornell; new tests recommended.

By WALTER A. KILRAIN

THE CONTINUING DEBATE over the merits of backward-facing seats is being conducted largely in a state of ignorance as to just what happens to modern airframes, seats, seat-belts, and passengers when an airliner hits something. In most cases neither the airplane nor its passengers are in good enough shape to provide much information.

Into this field of ignorance the Crash Injury Research project at Cornell University has been probing. When a Northeast Airlines Convair 240 crashed into Flushing Bay just short of LaGuardia Airport on January 14, 1952, CIR was presented with a relatively rare opportunity: the aircraft fuselage was largely undamaged, the passengers and crew walked away from the scene, and 33 of the 38 people aboard were willing and able to fill out questionnaires on the accident.



TYPICAL DISTORTION of seats in accident is shown above. Torn up floor boards at left hampered evacuation of airliner.

From the detailed study that followed CIR concluded:

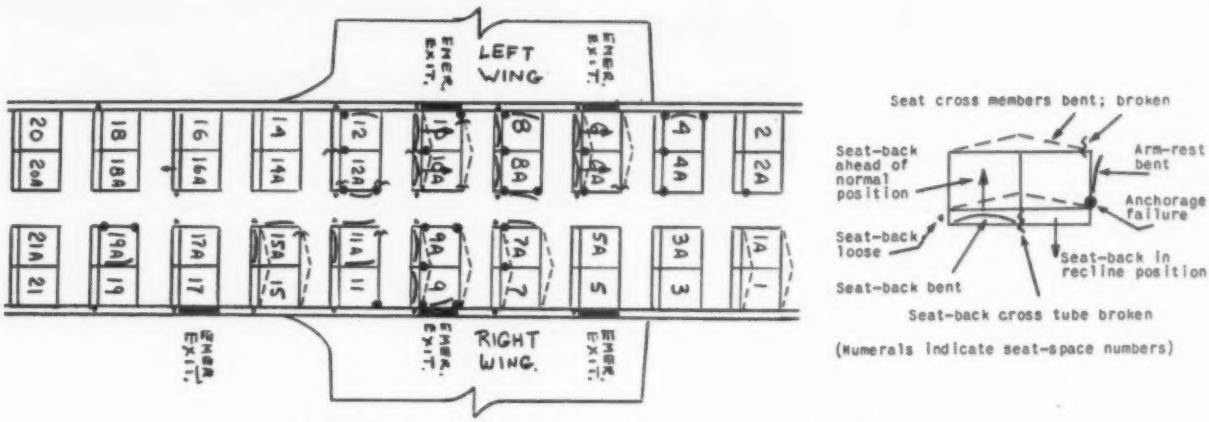
- **That although the mean force** of deceleration in the accident was only two or three g's, peak loads between 10 and 50 g's may have existed for fractions of a **second;**
- **That the pressurized fuselage** stood up very well to these loads, but transmitted the forces to the seats, 10 of which, as a result, tore partially (or, in one case, completely) loose from the floor;
- **That it is something less than reasonable** to attach seat belts designed to withstand 20 g's to seat structures which can stand only nine g's;
- **That if the crash forces** had been only slightly greater there would have been "avalanche of seats and passengers" tumbling through the sinking aircraft.
- **That we need to know** a lot more than we do about what happens to seats and related structures in crashes.

Ram Effect of Water

The Northeast Convair had been making a normal approach through smoke, haze, and intermittent fog, coming in at approximately 135 miles per hour and letting down at some 500 feet per minute. When it hit, the landing gear, left wing, and left engine were torn off and the nose wheel apparently ripped a hole in the bottom of the fuselage. Through this opening water was rammed in and accessories installed below the floor were driven up and back against the lateral floor beams, which were severely damaged to the rear of the center of the fuselage.

Longitudinal floor beams came out of the crash with very little distortion; what there was occurred in the center and aft sections, where the lateral beams also showed the worst effects. in the forward part of the cabin both lateral and longitudinal beams suffered very little damage.

Damage to the seats, however, was distributed in just the opposite pattern (see diagram); where the floor beams had been distorted the most, the seats were in the best shape. Altogether half of the 20 seat-pairs had one or more anchorages fail. Up front, where the floor was in good condition, five of the eight seats had anchorage failures. In total, anchorages failed on 63% of the seats in the front section, but only 33% of the seats in the center and rear. Since the passengers were evenly distributed throughout the cabin, it was presumed that the variation in the transmission of



TYPES OF DAMAGE that occurred are diagrammed above. Bent cross-members of seats and distorted head rests were predominant.

loads by the floor beams made the difference.

The seats were designed for loads of six g's forward, 6.6 g's downward, and 1.5 g's sideward, and CIR estimates that the mean forces in the crash did not exceed two or three g's. The widespread seat damage was apparently caused by the fact that dynamic peak loads went far above the mean forces, possibly up to 50 g's for periods of 0.04 to 0.08 seconds.

In addition to these peak loads, other factors contributed to the numerous seat anchorage failure: jolt loads in cases where passengers had their seat belts fastened loosely; distortion of the longitudinal floor beams (although this was not widespread); asymetric loading of the two-passenger seats; and the rigid side structure of the seats where they were fastened to the cabin wall.

Both of the last two factors tended to make the seat pivot about its wall fastening, tearing the aisle fastenings loose in the process. The rigidity of the arm rests on the aisle side also contributed to anchorage failures when the downward loads of the passenger's weight in some cases drove the forward leg of the chair directly down through the floor beam to which it was attached, while at the same time exerting sufficient tension on the rear leg to uproot it from its anchorage.

"Evidence from this crash suggests," CIR notes in its report on the study, "that seat structure should be designed to bend and yield under ultimate loads without becoming detached from floor and wall structures—even after floor and/or wall structures have yielded, deformed, or buckled."

Aside from the anchorage failures, damage included seven seats which had their frames extensively damaged and 10 seat-backs which were deformed, presumably when they were struck by passengers' heads.

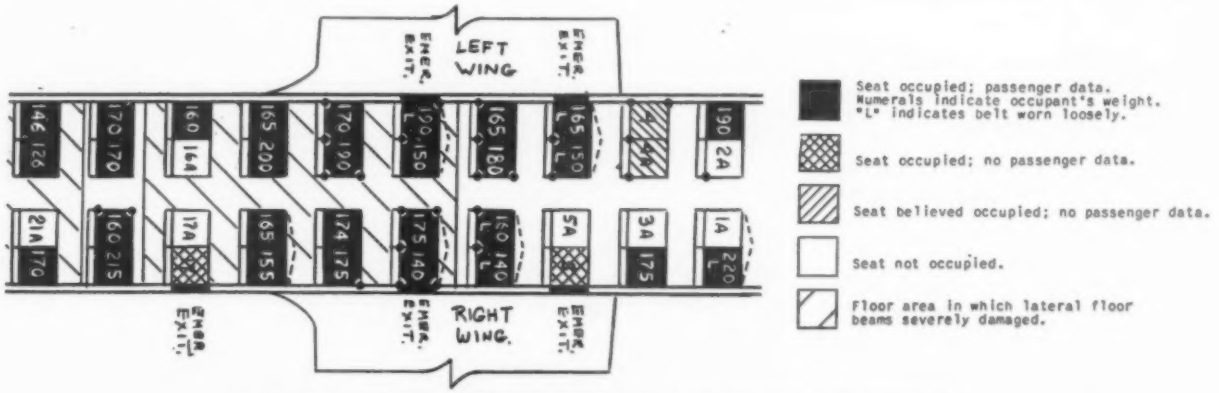
Throughout the aircraft the C-22A safety belts, which were designed for loads of 3,000 pounds, showed no sign of strain. Where the belts were loosely worn they undoubtedly produced jolt loads which helped to distort the seat frames; where they were properly worn such damage was less frequent and there were no serious injuries of the chest or abdomen.

Cornell's research group came out of the study with the conviction that there must be some better way to keep the passengers in place within the airplane at the moment of impact. A cable or wire might be used to tie the seat belt directly into the hull of the airplane, not relying upon the seat and its anchorages.

"Such linkage," the report notes, "might be similar to that used in some lightplanes and could be arranged to absorb considerable energy before the safety belts were loaded to their ultimate strength. Quite possibly, if safety belt loads by-passed the seats, the full strength of pressurized hulls could be utilized—without any material alteration of weight in current seat design."

Safety would also be served, in Cornell's opinion, if measurements were made of the magnitude and duration of forces in controlled crash tests of transport aircraft, and if dynamic rather than static tests were run on seats, seat anchorages, and safety belt tie-downs. At present the information that would be obtained from such tests is sadly lacking.

Complicating the testing and design



WEIGHT DISTRIBUTION OF PASSENGERS was not enough to account for variation in seat damage; transmission of force through structure was blamed.

problem is the fact that survivable accidents often involve cartwheeling and tumbling movements that are not allowed for in designs which have been planned with straightforward loads in mind. Dynamic tests, in CIR's opinion, should include maximum forward loads exerted 30° to right and left of the longitudinal center line.

What is the implication in such findings as far as rear-facing seats are concerned? One implication is that a cabin full of rear-facing seats which have torn loose from the floor would not be much safer than a similar cabin full of seats which had been forward-facing before the airplane hit.

Another implication is that safety belts can do a good job of keeping passengers in place in forward-facing seats, provided that the belts are adjusted snugly and are attached directly to the hull of the aircraft. It is possible that extensive testing may reveal that seat belts, under these conditions, might offer as great a degree of safety as the rear-facing seat.

Hugh De Haven, director of the Crash Injury Project, sums up the result of this and other similar studies: "Failure of six g and nine g seats and safety belts in transport aircraft are attributable to torsion and jolt loads . . . The mean force of a crash in cabin sections which remain intact may be in the order of 10 g, five g, or less. If this low force concept proves to be true, it is possible that good forward-facing seats will take care of passengers in all but a very small percentage of highly destructive airline crashes."

A measure of the progress that has been much in safety during the last 20 years might be drawn from a comparison of the Northeast accident with the report of a survivable crash in the 1930's, in which nine out of 12 passengers had broken necks from sudden, fatal contact with the seat-backs ahead of them. Tests such as those that CIR suggests are calculated to insure comparable progress in the next 20 years.

• • •

C-11 Schedule Covers 408 Transports

Air Coordinating Committee's new C-11 schedule, just approved, provides for construction of a total of 408 commercial transports to be delivered between July, 1953, and December, 1955. Domestic carriers are slated to receive 261, foreign lines the remaining 147.

ACC said the new schedule permits the start of 101 new transports in the fourth quarter of 1953 and continues materials allocations for 307 approved in prior programs.



West Coast Talk

By Fred S. Hunter

HUGHES HAS ASSETS BELOW GROUND, TOO

An interesting feature of the Hughes Aircraft Co.'s Culver City plant and air field is that a geological fault runs through the area, indicating that a very sizeable oil pool probably would be tapped if Hughes would take the trouble to throw up a derrick. One Los Angeles oil man estimated mineral and oil rights for the Hughes property at $14,000 an acre. That makes approximately $5,000,000 for the 350 acres.

No asset, however, is another quirk of nature that is working in reverse for Hughes. The land on Terminal Island where his flying boat is docked is subsiding at the rate of 16 inches a year. This involves a substantial item of expense for Hughes, who has to compensate for this sinking action in the maintenance of the graving dock and hangar in which he keeps the big craft. This is the sort of thing that contributes to the $200,000 or more a month it costs Hughes to continue the flying boat project. Another reason, of course, is that Hughes keeps thinking up new ways to improve the craft.

ADDED STRENGTH FOR LOCKHEED

By and large, aviation interests look favorably upon purchase of the Hughes facilities by Lockheed. Lockheed has increased its prestige tremendously since World War II. Its management policies have enhanced the company's reputation for character and integrity abroad as well as at home. It should be able to make the most of the assets it would acquire from Hughes.

These assets are considerable. Whatever else may be said of Howard Hughes he has fine foresight and an inventive turn of mind. These two characteristics prompted him to turn to electronics development soon after the close of World War II. He not only was 100% right in foreseeing how the electronics field would grow, but he succeeded in moving into a strong position of leadership in the products he developed.

Lockheed has the production know-how to go along with this development.

WEST COAST PERSONALITIES

Maj. James H. Doolittle, Jr., son of the famous Jimmy, is assistant base operations officer at Nellis Air Force Base, Las Vegas . . . **Tom Grace,** president of Slick Airways, is the 13th of 13 children . . . **Nat Paschall,** vice president of Douglas, works in Santa Monica, lives in Pasadena, practically a sleeper jump . . . **Al Bone, Jr.,** regional vice president of American Airlines, and **Bill Whitehead,** vice president and general manager of Airsupply Co., used to work together for Century Airlines in Cleveland 20 years ago . . . **Terry Drinkwater,** president of Western Air Lines, is a lawyer by trade . . . **Roy Marquardt,** president of Marquardt Aircraft, will talk ramjet by the hour . . . **George Cussen,** vice president of the Flying Tigers, bought himself a new Lincoln and is proud as all get out . . . **H. W. Thue,** works manager at Douglas Santa Monica, has been named to the SAE's production activity committee.

HERTZ SUPPORTS HOPKINS

John D. Hertz, long a director of Convair, was a key figure in the change of control of the San Diego aircraft manufacturer. Hertz picked General Dynamics as a logical buyer of the Atlas Corp. interests and was a strong supporter of the deal throughout the extended negotiations. Hertz has a very high opinion of the capacity of the organization John Jay Hopkins has built up. He has gone so far as to express the opinion that the purchase of the control of Convair by General Dynamics may well be "the beginning of the General Motors of the aircraft industry."

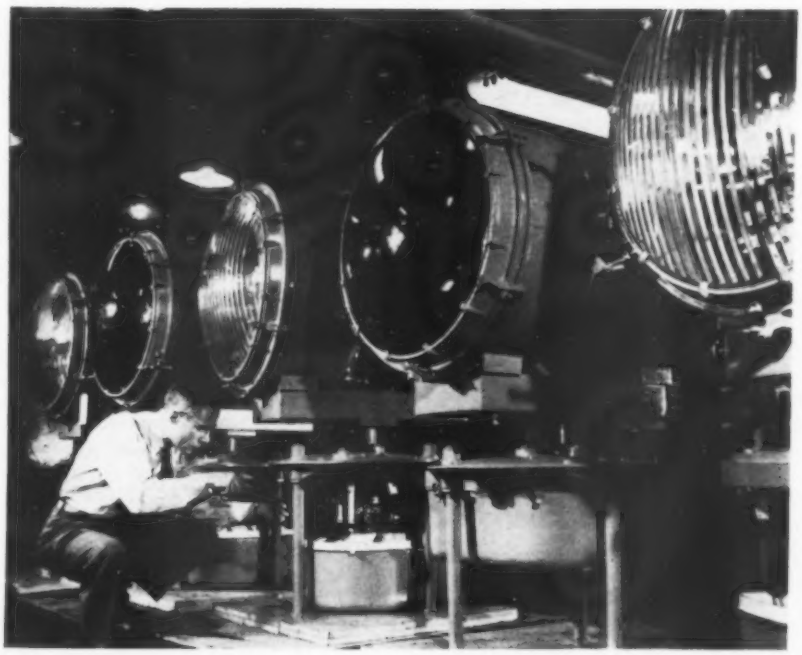


All-time peak has been reached in F-94C Starfire production, shown at left at Lockheed's Burbank plant. Final assembly comes after truck trip to Van Nuys, Calif. Six other production aircraft are, like the Starfire, "on schedule across the board," according to Robert E. Gross, president of Lockheed.

Production Lines



Afterburner fuel manifold is attached to a J47 engine exhaust cone assembly at Solar Aircraft by use of a planetary geared rollwelder. Machine replaces seven spotwelders, cuts time from four hours to 45 minutes, cuts manpower from seven to one. Upper electrode moves and work remains stationary.



Beacons for the USAF are given a final adjustment by a Westinghouse engineer in Cleveland. The 24-inch lights produce three million candlepower, flashing 12 times a minute. Two separate lamps are arranged so that if one should fail the other will automatically replace it.

Heat-Resistant Runway Material Developed

New substance withstands temperatures twice as high as those allowed by ordinary cement.

By William D. Perreault

THE Corps of Engineers, which controls all basic airport construction for the U. S. Air Force, and Westinghouse Electric Corp. have recently made tests on a completely new type of construction material that promises to ease many of the high temperature problems posed by the high velocity and high temperature exhausts of turbine and rocket engines.

The new material, known as Poz-O-Pac, will withstand temperatures up to 2400° Fahrenheit, compared with 1,000° maximum for conventional concrete made with Portland cement. Furthermore, Poz-O-Pac is immune to attack by kerosene and other jet fuels.

The new material is not a cure-all, it has its own limitations, but it is the answer to many current-day problems of manufacturers and the military services as they deal with engines of ever increasing power and temperature.

At Westinghouse Electric's jet engine plant in Lester, Pa., engineers installed a sample of Poz-O-Pac in the muffler some 15 feet behind a high-power developmental engine. Engine exhaust struck the sample at a 15° angle. Surface temperature of the sample ranged from 900° F. with basic engine power to 2100° with the afterburner operating. The sample was water quenched intermittently to drop the temperature about 1000° in a few seconds. Gas velocity was between 600 and 700 feet per second.

After 42.35 hours of running, 1.46 hours using the afterburner (see photo), virtually no erosion was experienced. The grooves in the lower part of this photo were worn by vibrating clamps.

Another sample was soaked in JP-4 jet fuel for 60 days to determine the effect of jet fuel. Then it was subjected to an acetylene flame. The fuel burned off but the sample did not deteriorate, even after 41.12 hours in the engine muffler, including 0.57 hours with the afterburner operating.

Concluded Westinghouse: Poz-O-Pac "exhibits superior heat and exhaust blast resistance characteristics necessary for satisfactory applications subjected to jet engine exhaust blasts such as jet aircraft run-up areas, blast pits, runways, etc."

Tests by the Corps of Engineers at the Ohio River Division Laboratory were even more impressive. There a sample of Poz-O-Pac measuring 6" x 6" x 6" was subjected to the blast of a kerosene-oxygen rocket engine producing temperatures over 2000° F. and velocities of several thousand feet per second.

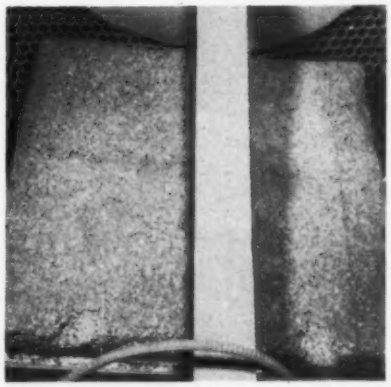
Even with the exhaust and samples fixed in position, 15 seconds direct blast only caused melting of the sample to about 1/64" below the surface, with no other outside effects.

The Corps of Engineers is considering installing a field test area of the new material at Patrick Field, Fla.

"Poz-O-Pac" is a name which applies to a whole series of soil compositions, and the type discussed here is primarily high temperature Poz-O-Pac, a special variety. Basically the entire family of compositions is made up of fly ash, lime, and some type aggregate. The high temperature version uses slag for the aggregate.

This strange table of contents reflects the history of Poz-O-Pac. It was developed over a period of 15 years by scientists with the Philadelphia Electric Company. Fly ash and slag are by-products of the furnaces used in great numbers to generate heat and power. Fly ash is the solid matter in the chimney smoke which, for sanitary reasons, has to be recaptured. The slag is the molten portion of the coal which drops into the liquid-bottom furnaces. It is drained off into water tanks where it solidifies in small globules.

Hundreds of tons of these by-products are produced daily. While they had previously been used for fill, handling and disposal was costly and useless. Today the process of making Poz-O-Pac is controlled by G. & W. H. Corson of Plymouth Meeting, Pa. Corson is the oldest lime manufacturer in the U. S. and has one of the country's largest soils laboratories, headed by Dr. L. John Minnick. This group is doing detail development and research work on the new material and its applications.



AFTER 42.35 HOURS of testing, at temperatures ranging from 900° to 2100° F., this is how Poz-O-Pac looks. Grooves in lower part of block were made by holding clamps vibrating.

In the slow, painstaking process of introducing any basic new material, Minnick's group has succeeded in getting some tests on highways in Maryland and on the New Jersey Turnpike.

More recently another company, John Bright Associates, Inc., of Wings Field, Ambler, Pa., has been formed to handle aviation applications of Poz-O-Pac exclusively. The company is made up of John Bright, Jr.; Guy Miller, owner of Wings Field and well known aviation personality; and William Smith, an aviation enthusiast who operates two twin-engine planes of his own.

It is this group that has worked with Westinghouse and the Corps of Engineers. More recently they have bid on extensive apron work at the new Philadelphia International Airport.

Much remains to be learned about the characteristics of Poz-O-Pac, but enough is now known to establish that:

- **It is superior** to basic construction materials in installations requiring heat-resistant characteristics, such as jet and rocket engine test cells, run-up pads, etc., taking up to 2400° F. before breaking down.
- **It is immune** to the effects of jet fuels, even over long periods.
- **Because it is made** from waste-products, it is considerably cheaper than concrete and even cheaper than regular types of soil used for sub-base in laying runways, taxi strips, etc.
- **Its density** is 140-145 pounds per square foot, compared with 150-155 for concrete.
- **Its compressive strength** is about half that of regular concrete, a little better than lean concrete.
- **Tests to date** have proved it suitable for use with single-wheel loads up to 60,000 pounds per square foot.

John Bright Association is not primarily interested in handling construction work, although it will do some of this. Instead it will license reputable firms handling airport construction work to use Poz-O-Pac. The licensing fee will include engineering consultation on the use and handling of the new material. • • •



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CITIES SERVICE
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Leases Cut Corporate Aircraft Costs

Package plan provides user with new model each year, avoids personnel, maintenance problems.

By Lois C. Philmus

LEASE AIR, subsidiary of Youngstown (O.) Airways, offers business concerns the opportunity to have their cake and eat it too—to own aircraft without such headaches of direct ownership as maintenance, personnel, or insurance.

The plan is a packaged lease deal. Here's how it works:

Youngstown, a Beech aircraft distributor, purchases D-18's and Bonanzas on behalf of its leasers, and assigns individual aircraft to each company. The company in turn places a deposit which consists of one-third the cost of the airplane with Lease Air. At the end of the year's lease, the aircraft user is billed for the depreciation of the airplane.

On this basis, Lease Air is currently operating two D-18's and 13 Bonanzas. Thus, the companies have aircraft at their disposal whenever needed. In the event that two aircraft are needed at any time by a corporation user, there is always an extra airplane available.

After using an aircraft for a year's time, Lease Air offers its customers the opportunity of turning in the plane for a new model or continuing with the same airplane. In most cases the customer takes advantage of obtaining the latest model, at just about the same cost as during the previous period.

Lease Air's service does not end at supplying the aircraft. It offers the services of 15 specially trained full-time pilots, 11 mechanics, and nine administrative, weather, and radio specialists, none of which the small corporation aircraft user could afford to provide for his own operation.

Youngstown's president, Forest Beckett, states that all the lease equipment has been standardized for easy maintenance and that engine overhauls on the Bonanza are performed every 550 hours, lower than the factory-recommended period of 800. Beckett is particularly proud of the radio service operated by his company, which he feels is comparable to that of the airlines.

The 15-pilot staff is supervised by John Lyden, chief pilot, who is responsible for all scheduling. The pilots are put through a special training program after they are hired and must serve a probationary period. Pilot and co-pilot teams fly the two D-18's.

All aircraft maintenance is done at Youngstown's base at the Municipal Airport by its 11 mechanics. Airworthiness certificates are issued by a designated company inspector. Another advantage to the lessor is the fully equipped weather station at the base where Lease Air does its own weather forecasting. (This individualized weather service has proved so much more accurate than the Weather Bureau's that the executive pilots often check back to home base for information when off on a flight.)

Schedules No Problem

Lyden is able to schedule flights on five minutes notice, although he, of course, prefers more time. With a complete complement of aircraft and pilots on hand at all times, scheduling is hardly a major problem.

The lessor is billed for pilot service, gas and oil, and maintenance on a monthly basis.

The economy of the lessor arrangement for executive aircraft operation is reflected in pilot charges: $350 per month for a first pilot and $180 a month for co-pilots and Bonanza pilots. The aircraft user is also charged $8 per flying hour and is responsible for the pilot's expenses during layovers.

Beckett figures that the average cost per year to the executive or company is between $4,000 and $5,000.

The leasing arrangement has been found, according to Beckett, to get the maximum utilization out of each aircraft by utilizing the aircraft- and pilot-pool method. Each Bonanza averages about 400 to 500 hours per year and each D-18 gets about 600 hours of flying time. Beckett figures that his 15 aircraft have flown executives to all points in the U. S., covering about 125 million miles in one year.

Youngstown has been operating its Lease Air subsidiary since 1946. During that time there has been only one fatal accident, a record of which Beckett is rightfully proud.

Under the lease plan, Lease Air retains title to the aircraft, although it is designated for a particular user. Under this set-up, the operator is responsible for the entire insurance coverage.

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Hiller Helicopter's annual report contains the above sketch of a passenger helicopter, seen as one of several possibilities for future development.

Customers consist of engineering firms, steel companies, and insurance organizations. One company began leasing aircraft in 1946 and currently is utilizing two airplanes, its sixth and seventh, under the lease arrangement. The Copperweld Steel Co. began operating aircraft in this manner back in 1948.

Although most of the customers keep renewing the lease arrangement, it is natural that a certain amount of Beech sales result from the "try-out." In this way, Youngstown has created a sound lease business and is creating new markets for its distributorship by showing new aircraft users how successful and safe a professional aircraft operation could be.

• • •

Braniff Strikers Return to Work

The end of the mechanics' strike against Braniff Airways has been announced by T. E. Braniff, who reported that more than 400 of the 600 striking members of the AFL-Air Carriers Mechanics Association have asked the company to rehire them.

Those who are rehired will be eligible for restoration of wage rates and accrued vacation and sick leave in accordance with an offer made when they were taken off the payroll. Rehiring will proceed as outside contracts for maintenance and overhaul work are ended. About 95% of total schedules were maintained throughout the strike, which began April 13.

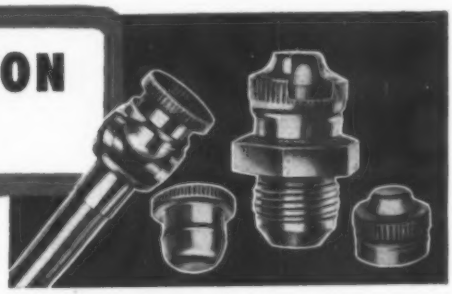
ACTA Delays Naming Heacock Successor

Naming of a successor to Amos Heacock as president of the Aircoach Transport Association has been deferred by ACTA's board of directors until the next general membership meeting. Gus Callas, president of General Airways, a Portland, Ore., large irregular carrier, has been named to fill Heacock's post on the ACTA board of directors.

Wiggins Options DC-3's

E. W. Wiggins Airways has an option on four DC-3's, equipped for local service use with zero engine time, to place in operation within 120 days if CAB renews the Wiggins certificate, according to Joseph Garside, president.

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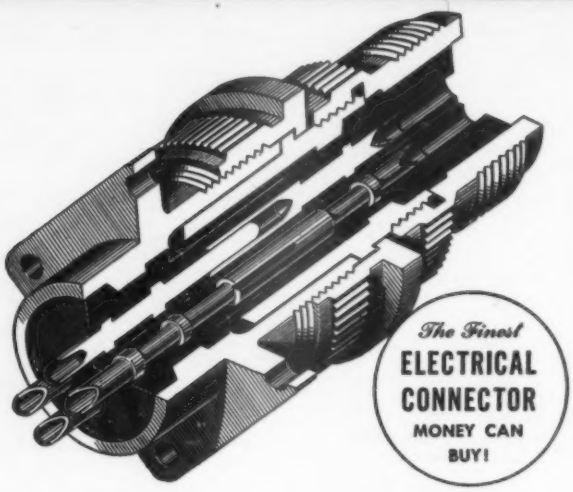
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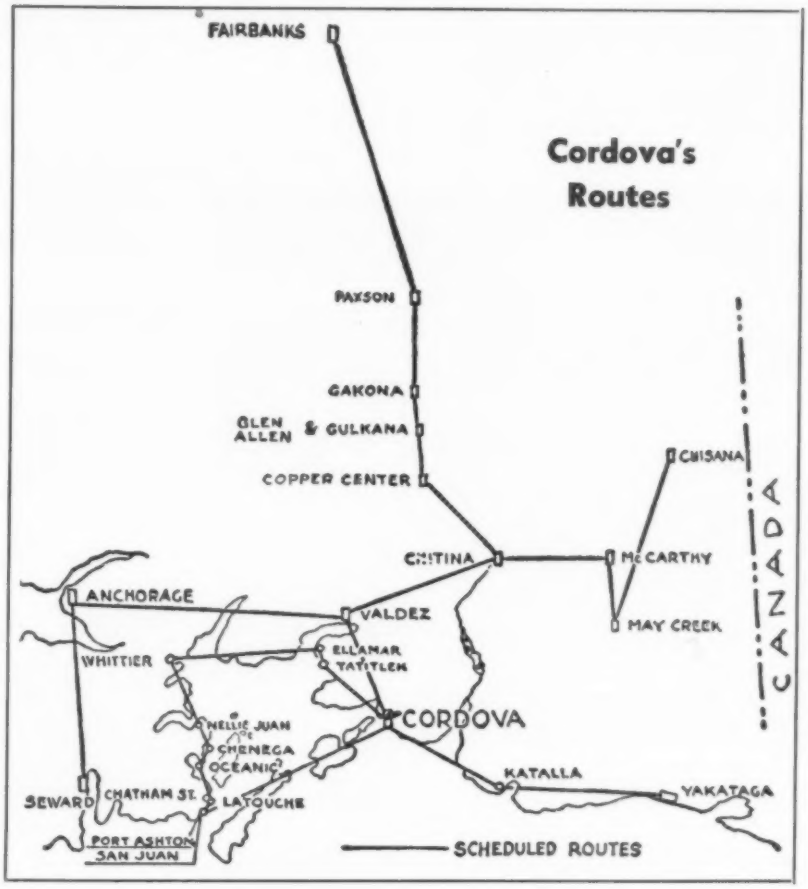
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Cordova Airlines: Expanding Fast

Recent growth has taken the carrier a long way from the bush leagues in the last few months.

By Eric Bramley

IN ALASKA, the transition of an airline from bush-type flying to larger-scale operations has often taken place over a long period of time. Cordova Airlines is one of the exceptions—it is jumping rather quickly from one to the other. Not that it's "big league" yet, but it's on the way.


Smith

Until mid-1952, the company operated out of its headquarters at Cordova, a town about 150 miles south and east of Anchorage, into the 50,000-square-mile area of the Prince William Sound and Copper River regions with single-engine aircraft. Although the operating region remains substantially the same, some significant additions have been made in the last several months which have substantially and rather suddenly expanded the airline's activities. These include:

- **Addition of a short** (75 miles) but important route from Anchorage south to the port of Seward.
- **Opening of passenger and property service** from Cordova and Valdez to Fairbanks, Alaska's second largest city.
- **Purchase by Cordova** of its first twin-engine airplane of any size, a DC-3 obtained from Braniff Airways.

Only a few weeks ago, the company, headed by Merle K. ("Cordova") Smith, a veteran of 16 years' flying in the Territory, changed its name from Cordova Air Service to Cordova Airlines to reflect its larger operations, which now cover about 1,000 miles of routes.

The company was incorporated in 1934 by a group of Cordova businessmen to haul passengers, produce, and other supplies from that town to the interior, with a couple of Bellancas formerly operated by American Airlines. In 1938, it was awarded star mail route contracts by the Post Office Department, and was certificated by CAB as an air mail carrier in 1942.

Smith started in Alaska in 1937 as a pilot for Cordova, after a period of barnstorming in the U.S. By 1944 he had acquired control of the airline and has been its president since.

Cordova continued its traffic growth last year. It hauled 6,588 revenue passengers, a 30% increase over 1951; flew 593,000 passenger-miles, 35% gain; increased revenue plane-miles 17%, to 352,371; carried 12,148 ton-miles of mail, up 14%.

Freight ton-miles were down from 11,302 to 10,697. This decrease probably resulted from the recent rezoning of Alaska parcel post services by the Post Office, which increased substantially the utilization of such services and reduced the volume of freight and express transported.

Until acquisition of the DC-3, Cordova had been operating with three Cessna 170's (one on floats), two Piper PA-14's, three Stinson Gullwings (two on floats), one Norseman, and one Grumman Goose.

More Twin Engines

Needing larger equipment, Smith last summer purchased a Lockheed Electra from Wisconsin Central Airlines (now North Central), but the plane was washed out in a training flight before it got into scheduled service. A few months ago, he bought the DC-3 from Braniff, and it's now in use on the principal routes. He can be expected to add more twin-engine equipment.

The company handles all bush-plane maintenance at Cordova, where four mechanics are based. Larger aircraft are overhauled at Anchorage by five mechanics. All bush pilots are A&E mechanics. The company has had only one fatal accident in its history.

The Anchorage-Seward route was purchased last year from Christensen Air Service, operated by Hakon Christensen, another Alaskan aviation pioneer. Although Seward is connected with Anchorage by rail and road, the 40-minute flight is a time-saver that is much in demand.

For some years, Cordova had an irregular route authorization to points north of Chitina, such as Copper Center, Gulkana, Gakona and Paxson. Last August, Smith obtained an exemption from CAB to continue on through these points to Fairbanks, carrying passengers and property. Purpose of the exemption is to allow Cordova to explore the traffic potential along the route. It could develop into one of the company's most important operations. Under the exemp-

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tion, Anchorage-Fairbanks schedules are not permitted.

The airline, with its 37 employes (including 10 pilots), has faced some tough problems. In the rather quick transition to larger operations, there has been the expense of meeting the requirements of Part 41 of the Civil Air Regulations (certification and operations rules for scheduled air carrier operations outside the continental limits of the U.S.). There was also the pressing need for money for equipment. This has been somewhat eased by a $100,000 RFC loan, part of which was used to pay for the DC-3.

Among the other problems, as pointed out by the CAB in a Cordova mail rate proceeding, is a "severe traffic imbalance with peak loads out of, or into, terminals, and very little traffic moving between intermediate points. Moreover . . . operations are extremely seasonal."

CAB also found that the many stub-ends of Cordova's operations contribute to low plane utilization (Smith puts it more graphically: "We have six months of damn good utilization and six months of damn poor utilization, and it all adds up to poor utilization. But we have to have the equipment for peak months.") The Board concluded that, considering all factors, the low utilization was not unreasonable.

As is the case with a number of other Alaskan operators, Smith is optimistic about the future of the tourist business. He has a number of items in his favor.

By serving the port of Seward, he can contact tourists arriving by boat. He can offer them one of Alaska's most scenic regions (and one that can only be toured by air), where the fishing and hunting are excellent, and where sightseers can view three huge glacier areas—Columbia, Bering, and Miles-Childs. At McCarthy, visitors can inspect the abandoned Kennicott copper mine, at one time the largest such mine in the world. Tourists, together with business from Alaska's growing permanent population, will furnish the traffic for his expanding operations, Smith believes.

• • •

Early Wright Document

Harper's Magazine for June carries the never-before-published story of how Orville Wright and his brother invented the airplane. Fred C. Kelly, the Wrights' official biographer, discovered the document by Wright in the files of the U. S. Dept. of Justice where it had lain for over 30 years. It was part of a deposition Wright made in a patent claim brought by another person against the Federal Government. The document appears with omissions but otherwise without revision.

GREAT AIRLINES from LITTLE AIRLINES GROW



and become GREAT assets to the commercial and military might of our Nation!

AMERICAN AIRLINES of New York City is one of the finest examples of such dynamic development. For American began back in the twenties when numerous small independent airlines were formed, backed only by private capital and the determination to render a vital new service to the Nation and its citizens.

In 1929 Aviation Corporation was formed to help finance and organize a sprawling network of small, dissimilar transport companies. In 1930 American Airways was formed. It consisted of four operating divisions of AVCO. Colonial Airways Corporation including: Colonial Air Transportation, New York-Boston; Colonial Western Airways, Albany-Buffalo-Cleveland; and Canadian Colonial Airways, New York-Montreal. Embry-Riddle Aviation Corporation served Chicago-Cincinnati, and Interstate Airlines, Chicago-Atlanta, and St. Louis-Evansville. Southern Air Transport included Gulf Airlines, Atlanta-Houston-New Orleans and Texas Air Transport, Dallas-Galveston, Dallas-Brownsville. And the fourth division, Universal Aviation Corporation was made up of: Robertson Aircraft Corporation, Chicago-St. Louis-Omaha; Continental Air Lines, Cleveland-Louisville; Northern Air Lines, Cleveland-Chicago-Kansas City; Braniff Air Lines, Tulsa-Dallas and Central Airlines, Kansas City-Wichita-Tulsa.

In 1930 Standard Airlines was acquired from Western Air Express. During 1932 Century Airlines and Century Pacific Lines were added and in 1934 coincident with the formation of American Airlines, C. R. Smith became president of the new company.

Today, fifty years after the Wright Brothers' first flight, American Airlines has become America's leading airline, serving 77 cities from the Atlantic to the Pacific, from Canada to Mexico.

Thus on the golden anniversary of powered flight, NORTH AMERICAN AIRLINES, an independent carrier pioneering air-coach in today's tempo, congratulates American Airlines and its management for its contribution in the development and growth of the Nation's air transport industry under the American free enterprise system.

(Fourth in a series—"FOLLOWING THE TRAILS OF THE PIONEERS")

NORTH AMERICAN AIRLINES

First in Air Coach



Starfire efficiency means Air Force economy

The United States Air Force is economy minded. Yet it must and does expect superlative performance from its aircraft.

Take a look at how the Air Force's new all-weather fighter-interceptor, the F-94C Starfire, fills the bill on both counts—performance *and* economy.

Recent operation under tactical conditions shows that the Starfire is a rugged, reliable plane that averages many working hours in the air between servicings. This cuts maintenance costs throughout the life of each plane—a sizable cumulative saving. Furthermore, Starfires are *easy* to service and are therefore quickly back on duty. Less frequent service plus quicker service means *more flying time per plane*, so that fewer total planes are needed by the Air Force—another sizable saving.

At the same time the U.S.A.F. Starfire gives top performance in any weather, night or day. No other fighter-interceptor can reach enemy bomber level faster from a cold start. No other has finer automatic equipment—Hughes Radar System, Westinghouse Automatic Pilot, Sperry Zero Reader, Lockheed Rocket Release. And the F-94C is easy to fly and rock-steady under instrument conditions.

In addition the Lockheed Starfire is a 2-place interceptor, thus utilizing the cooperative efficiency of a 2-man team to perform all the split-second operations of intercepting an enemy (possibly unseen) at 600-mph-plus speeds.



F-94C Starfire

Lockheed *Aircraft Corporation*

BURBANK, CALIFORNIA, AND MARIETTA, GEORGIA

LOOK TO LOCKHEED FOR LEADERSHIP

Lockheed

Starfire Scores First Night Kill on MIG-15

Burbank, Calif.—(Special)—The F-94 Starfire has scored the first night victory over a Russian MIG-15, according to U.S. Air Force dispatches from Korea.

The Air Force announcement was the first disclosure that Lockheed F-94 Starfires were on duty in Korea. Designed essentially for round-the-clock, round-the-calendar home defense, these almost-automatic radar interceptors are proving to be as versatile as other Lockheed jets, including the famous F-80 Shooting Star, America's first operational jet fighter.

Lockheed's jet fighter record in Korea began *when the F-80 Shooting Star became the first airplane ever to shoot down a Russian MIG.* Later, the Shooting Star was assigned a multitude of missions—napalm bombing, ground-support strafing, bombing with 500-pound bombs, aerial interception, photo reconnaissance, close interdiction and many others. In the first year **Lockheed Shooting Stars had flown more missions than all other allied aircraft combined.**

Now the Shooting Star's younger but more powerful brother, the F-94 Starfire, is proving equally versatile both in Korea and at home, where it is on alert to protect major cities from air attack.

Lockheed builds U. S. defense team

Lockheed F-94 Starfires are just one member of the "defense of America" team now in production at Lockheed:

Lockheed T-33 and TV-2 Jet Trainers, in which 9 out of 10 U.S.A.F. and Navy jet pilots are trained, are being turned out at the fastest rate in history following installation of a mechanized final assembly line at Lockheed's Van Nuys, Calif., factory.

Navy P2V Patrol Bombers, holders of the world's distance record, now have improved radar and armaments, expanding their versatility from anti-submarine patrol to long-range reconnaissance.

Super Constellation Transports designed for new turbo-prop power are now in production for special Navy assignments. Other Super Constellations with turbo-compound engines are being produced for Air Force troop transport, hospital planes and cargo.

WV-2 Super Constellations, early-warning aircraft for the Navy, apply an entirely new concept of national defense which expands radar's eyes and ears far beyond the horizon.

B-47 Jet Bombers, designed by Boeing, are being produced for the Air Force at Lockheed's big Marietta, Georgia, plant.

The C-130 Turbo-prop Cargo Transport is the first all-cargo plane designed from the ground up for high-speed turbo-prop power—now tooling for production at Marietta and Burbank.

Today's advanced production is only a part of Lockheed's present concern. For in the Lockheed laboratories at Burbank and Van Nuys, California, as well as Marietta, Georgia, scientists pry deeper into the mysteries of new types of power, new guidance systems, new and lighter and stronger alloys to answer the demands of tomorrow's science of flight.

Extra Section

By Anthony Vandyk



(The title of this column implies "something extra, not normally scheduled." Starting with this issue the column will fit the title more closely: it will be written in successive issues by various staff members and contain jottings from each member's field. In initialing the switch, Anthony Vandyk has taken the airborne alphabet approach.)

AMBASSADOR, big **BEA** transport, is winning many friends because of its high wing. People like looking at scenery rather than aluminum. . . . **BRUSSELS** will soon have the world's most modern downtown air terminal, with a basement railroad station (high-speed shuttle service to Melsbroek airport) and rooftop heliport. . . . **COMET** lady passenger wrote **BOAC** that there was no truth in the rumor that high cruising altitude disintegrated nylon stockings and underwear. . . . **DETA,** government airline in Portuguese Africa, sent a delegate to the **IATA** technical conference in Puerto Rico, setting an example for the many larger carriers which were unrepresented. . . . **EUROPEANS** are complaining that inadequate publicity has been given to the reduced tourist baggage allowance.

FOKKER'S bid to resume its place as one of the world's premier transport aircraft manufacturers is strengthened as prospects for Canadair's CL-21 deteriorate: Fokker's F-27 and the CL-21 are very similar designs—high-wing "DC-3 replacements." . . . GHOST engine of the Comet had many of its "bugs" worked out in Sweden—the Swedish Air Force was the first large-scale user of Ghosts. . . . HUREL-DUBOIS is a rising star in the French aircraft industry. A large production contract for the HD-32 "DC-3 replacement" seems assured.

IATA technical conference in Puerto Rico created many new, if temporary, friendships. Said one delegate: "When I have returned home and feel the boot in my teeth, I shall at least know that the foot behind it is the foot of a friend." . . . **JAMAICA** (British West Indies, not Long Island) now has a non-stop service to New York—operated by Colombia's Avianca with Constellations. . . . **KLM's** entry in the London-New Zealand race this fall—a DC-6A—recalls the 1934 England-Australia race where the Dutch airline gained second place with a DC-2. . . . **LUXEMBOURG AIRLINES** may soon become a big international operator.

MACAO, Portugal's lone outpost in the Far East, hopes to attract airlines serving nearby Hong Kong through the British colony's inadequate Kai Tak airport by expanding Macao's present 4,000-foot strip to make a 10,000-foot runway. . . . NORD 2501, France's C-119, has a commercial future; 30 of the twin-boom planes have been ordered by two Brazilian airlines (Aerovias Brasil and VASP).

OLYMPUS twin-spool jets which powered the altitude record-breaking (63,668 feet) Canberra could not use full power because of a restriction on jet pipe diameter imposed by the wing spar structure. . . . **POLAND'S LOT** airline passes through the Iron Curtain on several of its routes. One of these links Warsaw with Paris and is operated thrice weekly with Ilyushin I1-12 aircraft (a model resembling the Convair 240). . . . **QANTAS EMPIRE AIRWAYS,** Australia's international flag carrier, has big plans for serving North America once a formula can be found for disbanding British Commonwealth Pacific Airlines, the joint Australian-New Zealand-United Kingdon carrier flying the trans-Pacific route. . . . **ROLLS-ROYCE** probably has carried out more experiments with reverse thrust than any other engine manufacturer, but to date has kept silent on results.

SILVER CITY AIRWAYS schedules an automobile-carrying flight every 15 minutes in each direction over the Lympne (England)-Le Touquet (France) route this summer. Bristol 170's are used. . . . TRINIDAD'S Piarco airport is one of those rarities that provide good accommodations for the transit passenger: two first class hotels.

UBA—Union of Burma Airways—is one of two airlines operating Handley Page Marathon high-wing, four-engine feeder transports; the other is West African Airways. . . . **VANCOUVER** airport is a treasure trove for aircraft enthusiasts. Grouped around the field are transports of all shapes and sizes from DC-6B's to ancient Junkers single-engine floatplanes. . . . **WESTLAND AIRCRAFT's** design for a 400-seater helicopter with Armstrong-Siddeley Sapphire jets at the blade tips is a pipedream; it corresponds to no present specifications.

XAPURI, Brazil, is the only place beginning with the letter X that is served by an airline (Cruzeiro do Sul). . . . YAK-25 is tipped as the Red Air Force's MiG-15 replacement. Powerplant is an axial-flow jet giving at least a third more thrust than the MiG's centrifugal-flow RD-45 (Nene). . . . ZURICH airport's terminal building, just opened to traffic, is Europe's best yet.

B25 MITCHELLS
Immediately Available!

A fine airplane for military use or easily converted to fast comfortable custom executive transports. Can provide seats for 7 passengers; capable of 260 M.P.H. cruising range. All ships are Babb's and you can inspect them immediately!

B25J

registration N9958F, mfgrs. No. 108-32953 (44-29678), a former military executive transport. Interior now stripped but all wooden stringers and supports still installed for cabin interior. Has greenhouse nose, side blisters and 2 extra side windows, all turrets removed. Total airframe time 1690 hours and 500 hours since overhaul; R2600-29 engines with 900 hours T.T. and 250 hours T.S.O.

Price **$75,000** "as is" flyaway Newark.

B25J

with military configuration, mfgrs. No. 108-35365 (43-36075). T.T. on airframe 1220 hours; only 40 hrs. T.T. on each R2600-29 engine. Bomb doors functional; Top and tail turrets removed but easily reinstalled; 8-gun nose with all trunions and ammo boxes installed. Ten additional guns could be installed, 2 on each side plus one in each side blister, 2 flex guns in tail turret and 2 in top turret, total 18 guns.

Price **$75,000** "as is" flyaway Miami.

B25H

a military ship, mfgrs. No. 22000 (43-4999) with R2600-29 engines. T.T. on airframe only 250 hours with recent 100 hr. check. Only 40 hrs. time on one engine and zero on second. Bomb bay door mechanism complete and functional. Has 4-gun nose with all mounts and ammo boxes installed, also mount for 7 mm cannon. Ten additional guns can be installed same as B25J described above, total 14 guns plus cannon.

Price **$75,000** "as is" flyaway Miami.

WRITE OR WIRE FOR FURTHER DETAILS

THE Babb COMPANY, INC.
104 E. PEDDIE ST. NEWARK 1, NEW JERSEY
1007 AIRWAY GLENDALE 1, CALIF.

Maintenance Bulletin Board



Training panel for instructing U. S. Air Force and Navy mechanics on electrical system of Lockheed P2V Neptune is typical of units designed by Lockheed Aircraft Service, Inc., for all major systems of the airplane. Using actual aircraft parts, new aids permit simulation of flight conditions as well as troubles which might occur due to part failure.

Higher Ceiling for WAL Pressurization

Western Air Lines Douglas DC-6B's are equipped with a high-capacity pressurization system which permits maintaining a "sea level" cabin up to 12,270 feet instead of to 9000 feet, as in the conventional DC-6 and DC-6B airplanes. The WAL system will hold an 8000-foot cabin altitude up to 25,000 feet. The standard pressurization system only maintains this cabin level up to 20,000 feet.

Major changes in the system bought by WAL:

- **Supercharger rework** calls for addition of an inducer in the impeller assembly and use of a higher capacity Vickers model PV-3915 variable displacement pump. With this combination, the output of the supercharger is increased 26% over the 1100-cubic-foot-per-minute rating of the standard supercharger installation.
- **A new expansion turbine** of higher capacity is used.
- **Structure is modified** to permit raising the cabin differential pressure from 4.16″ Hg to 5.46″ Hg.

New supercharger and expansion turbine are interchangeable with standard units now installed in DC-6 and DC-6B but cannot be mixed. The high capacity supercharger cannot be used with a standard turbine, and a standard turbine cannot be used with high capacity supercharger.

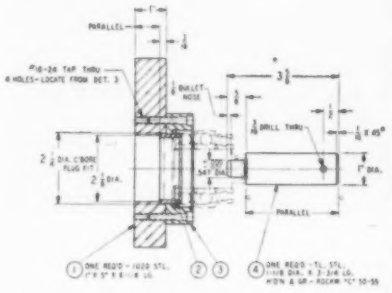
High-strength fuselage became a production item on later DC-6B deliveries whether or not the new pressurization system was ordered. Pan American World Airways and the Navy are also reported to have selected the high-capacity system.

EAL Spark Plug

Eastern Air Lines has adopted the AC 271 spark plug as standard for the Pratt & Whitney R-2800-CB-3 engines in its fleet of 60 Martin 4-0-4 airplanes. The AC 271 is a massive electrode-type plug with ¾″-20 shielding barrel threads. It is produced by the AC Spark Plug Division, General Motors Corp.

Lacquer Thinner and Water for Pre-cleaning

Trans World Airlines has adopted a combination of lacquer thinner and water as a paint and grease pre-cleaner for aircraft surface painting operations. The idea originated from the TWA employe suggestion system and has proved successful in solving problems presented by other materials, namely the tendency of the grease to spread in one location, or of the cleaning material to become deposited on the surface in place of the grease.



Bearing Removal Tool Can Be Widely Used

Bearing removal tool developed by Vickers Inc. to do a specific job in the disassembly of PF-3900 series pumps can be used for any similar application merely by changing some of its basic dimensions.

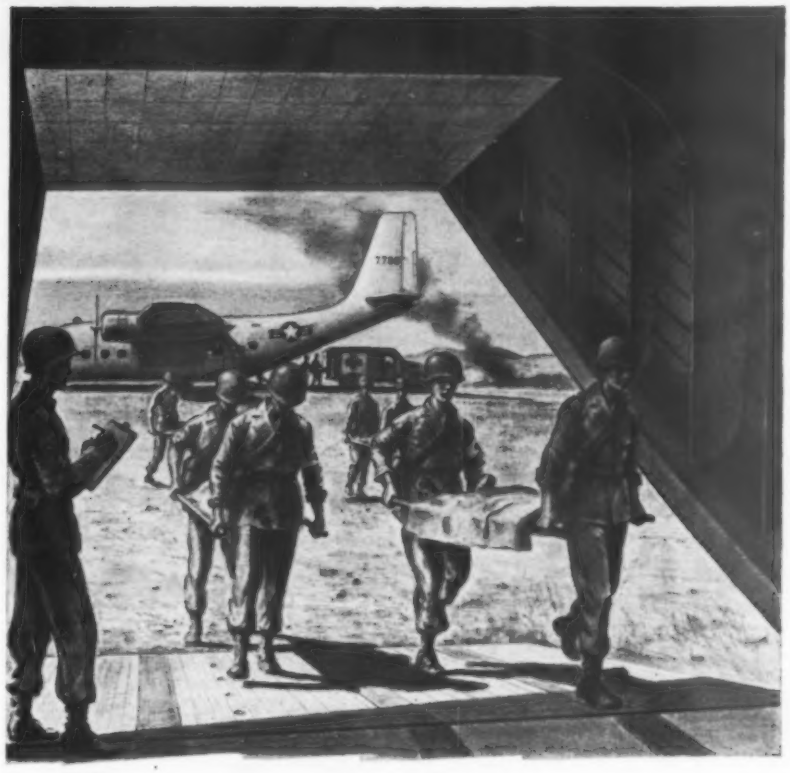
The tool is used in the Vickers pump on the drive shaft bearing, where the upper radial bearing has a snap-type outer race. To press the bearing out in the normal manner would result in the outer race coming loose, the balls spilling, and the inner race remaining on the shaft. The new tool, in the form of an arbor press fixture (see drawing), pushes the bearing off the shaft by loading the balls directly and carries the outer race along with the load.

Over-rated Bourden Tubes for Air Gages

Cure for air brake pressure gage bourdens tube failures adopted by one airline calls for use of a zero-3000 pound bourden tube in a 2000 pound system. Normal pressures in any air brake system usually call for gages to operate at the peak of the system range, and the operator traced bourden failures to this source. The over-rated bourden tube allows a much wider margin of safety.

PHOTO CREDITS

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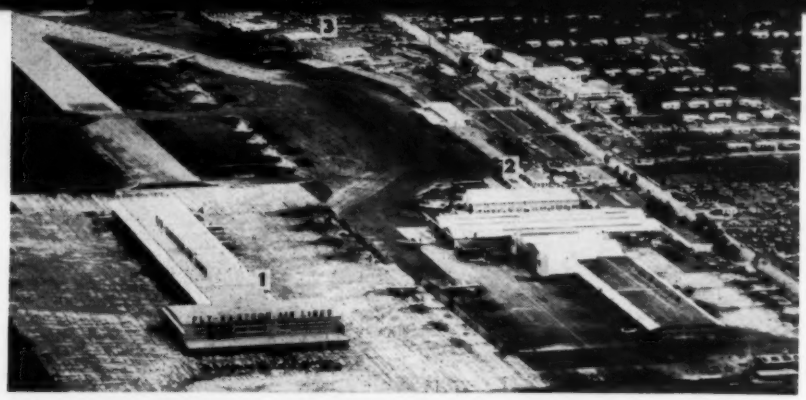
Airvac... from anywhere

The Avitruc is designed to haul troops and cargo—all sorts, shapes, dimensions, density; mobile, immobile or motorized—in and out of small, unprepared fields. Capacity to land in, and take-off from forward combat areas makes it indispensable for aerial evacuation.

Troops and materiel are delivered to combat arenas by ***landing***—casualties are immediately removed from battle areas.

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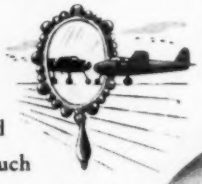


Miami International Airport air view shows extent of Eastern Air Lines' facilities, now worth $20,000,000. New $5,000,000 hangar and concrete ramp (1) covers about one-quarter of a mile with EAL's passenger terminal (2) and its ramp and service facilities ending at (3) extending for nearly the length of the airport. Other airlines use passenger terminal shown at (4).

Facts *and figures!..*

Figure:

Is she putting the garter on — or is she taking it off? And why the wink? Your guess is as good as ours. There's no guesswork, however, about the charms of Betsy Perrine, 27, brown hair and brown eyes, who gives the scales a treat with 120 lbs. of olive-skinned loveliness.



Fact:

Something old and something new: Such a blend helps make a June bride the traditional symbol of beauty and joy. Such a blend, too, makes a Southwest Airmotive-converted executive airplane a beauty to behold and a joy forever to the pilot and owner lucky enough to possess it. This is a fact we have proved many times in giving a luxurious new touch to an old airplane. Write our Service Representative for more details.



Southwest Airmotive COMPANY
LOVE FIELD DALLAS

New EAL Hangar Largest of Its Kind

Said to be the largest of its kind in the world, Eastern Air Lines' new $5,000,000 line maintenance hangar at International Airport in Miami, Florida, provides 448,748 square feet of floor space and is 1,219 feet long. EAL financed construction of the structure, which now becomes the property of Dade County Port Authority in exchange for 20 years free rent for the carrier.

The three-story hangar is built in the shape of a huge "T". The stem of the "T" has seven docks on each side capable of servicing both Martin 4-0-4's and Super Constellations. The 35-foot cross bar has a clear span of 150 feet and vertical clearance of 35 feet; it can accommodate two Super Constellations, enclosing them completely.

Assembled around each dock, which covers 55 feet of the plane nosed into it, are the tools and equipment for all maintenance work, including work stands.

The first floor houses heavy shop equipment and stockrooms, second floor offices and accessory overhaul shops, and the third is for storage. The east end of the building provides 335′ x 60′ of space for a one-story warehouse, set up for receiving, inspection, and distribution. This area is accessible from the street; trucks do not interfere with the planes.

Atop the hangar is a 500-foot neon sign boasting 18-foot letters weighing over 3,000 pounds, which are visible from a four-mile distance. A similar sign on the east end of the building is only 292′ long with 12-foot-high letters.

The hangar was dedicated officially early this month at ceremonies presided over by Capt. E. V. Rickenbacker.

New Instrument Runways at N. Y.

First step in program to establish bi-directional instrument approach systems at New York International, La Guardia, and Newark Airports will be taken by CAA with installation of approach lights and electronic aids. Program will permit straight-in approaches in instrument weather from the northwest, eliminating circling and increasing airport capacity. The Port of New York Authority's program also calls for dual approach runways at Idlewild for simultaneous all-weather landings and takeoffs.



TOP BATTERY ENGINEER of BuAer, M. A. Knight, is shown here with nickel-cadmium aircraft battery manufactured by French firm SAFT. Navy has ordered 2000, at one million dollars, with delivery to begin in August, 1953. Individual Ni-Cd battery cells are one-piece deep-drawn stainless steel cases (right, above), hermetically sealed and rated at about 1.3 volts each. Cells have built-in relief feature in event of excessive internal pressure buildup.

French Battery Challenges U. S. Types

New nickel-cadmium construction may revolutionize industry; battery may last as long as aircraft.

By Joseph S. Murphy

A SERIES of fast moving developments in new long-life aircraft battery designs—touched off by a U.S. Navy Bureau of Aeronautics million-dollar order to a French firm for a nickel-cadmium battery—give promise of revolutionizing the industry. They mark the beginning of the end for the lead-acid battery as the prime power source for aircraft electrical systems.

Within a matter of two years, nickel-cadmium batteries may replace lead-acid models in all military aircraft, Trend is emphasized by these developments:

• **French firm,** Societe Accumulateurs Fixes et de Traction (SAFT), will deliver 2000 Ni-Cd batteries to BuAer between August, 1953, and January, 1954. Additional Navy orders await an American production source.

• **Competitive** American-designed nickel-cadmium battery has been developed by American Bosch Corp. of Springfield, Mass., and is about to enter qualification tests by BuAer.

• **U. S. manufacture** of French battery is also in the cards. One American firm has option to manufacture it under license arrangement and the deal is in final negotiation stages.

The French firm is out ahead in the race for top position in the new battery market. Reason given American Aviation by Marine Colonel E. C. Best, director of BuAer electronics division, is that SAFT was first to perfect a hermetically sealed battery while using less than ¼ the amount of nickel and cadmium than heretofore possible.

But Navy procurement cannot depend wholly on a foreign source of supply if the battery is to be used widely, hence the limited order of 2000. The U. S. Air Force will probably adopt the nickel-cadmium battery when an American supply source becomes available.

The SAFT Ni-Cd battery is a 20-cell unit (not 22 cells, as erroneously reported in another aviation trade publication). It uses nickel and cadmium plate construction with a sealed-in alkaline electrolyte of potassium hydroxide.

Weight of SAFT battery compares favorably with lead-acid types. Test models delivered to BuAer weighed 79 pounds. Navy specification allows 78-80 pound range for lead-acid battery.

Only apparent disadvantage of nickel-cadmium battery is its high cost. Present Navy order involves average cost of $500 a battery, but includes some tooling costs. Best estimates on lowest expected price for foreign-built SAFT battery is $225, according to BuAer experts, based on production of 1000 per month. Navy feels that U.S. manufacture could bring this cost slightly below $200.

Advantages of sealed nickel-cadmium battery described by Navy officials are many. Biggest is its long life, now seen as virtually endless. During qualification tests for BuAer by National Bureau of Standards, SAFT battery passed specification requirements after a stringent 100-cycle charge-discharge test, and led to the one million dollar order. Units have passed 200-cycle mark at this writing, with no end in sight.

Nickel-cadmium battery may well last for the life of the aircraft, Col. Best said. This would far offset any cost disadvantage, as present lead-acid models last only an average of 100 hours in service and must be repeatedly replaced.

Greater reliability, reduced handling, and simplified installation are other big advantages pointed out by BuAer.

Resistance of SAFT battery to damage by overcharge will give greater reliability and improve safety, Navy specialists feel. This weakness in lead-acid batteries was evident in series of three accidents with Grumman F9F Panthers when improper adjustment of voltage regulators lead to battery overcharge. In each case electrolyte boiled off and complete failure of electrical system followed, necessitating evacuation of the aircraft.

Full Charge Retained

With the SAFT nickel-cadmium battery, in event of voltage regulator failure, the full generator charge can be sustained for an indefinite period without damage.

Maintenance and servicing are reduced with Ni-Cd batteries. Sealed feature dispenses with fluid level checks. Storage is no longer a critical item, as is the case with lead-acid types which require trickle charges and must be maintained "wet" once filled. SAFT battery can be stored or shipped with full, half, or no charge, without ill effects.

Aircraft installation is also simplified. No special vented compartment is needed to protect against acid spillage, fumes, etc. Telescopic trays for daily servicing are eliminated and new battery can be literally buried in the airframe, either installed upright, on its side, or inverted.

Navy plans to use Ni-Cd batteries

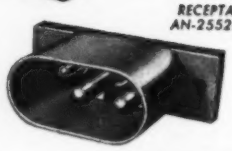


CAN'T PUT IT ALL IN WORDS . . . . .

It's a matter of record that JOY plugs and receptacles have been used by Aviation ever since airplane motors became large enough to require auxiliary electrical power for starting. Today these connectors are the preferred choice for motor starters, battery chargers, conveyor loaders, bomb hoists, ground heaters and other *on ground* equipment requiring portable power feeders. Words and pictures can't fully describe why this is so . . . it takes actual use of the products to appreciate the many advantages JOY has been able to incorporate in their construction during the past 20 years.

However . . . here are a Few Reasons why Joy Plugs and Receptacles rank High in Airplane Manufacturing Servicing and Maintenance Work


PLUG AN-2551


RECEPTACLE AN-2552-3A

☆ EXTREMELY FLEXIBLE ASSEMBLIES

JOY molded Neoprene plugs are factory-vulcanized to extra flexible *welding stranded* cable. Wiring ends are fitted with crimp style copper terminal lugs to facilitate hook-up.

☆ HIGHLY RESISTANT TO SUNLIGHT

Sunlight, moisture or heat little affect the operating efficiency or life span of JOY connectors. Glass melamine receptacle bases are highly resistant to arcing or flames.


PLUG AN-3430

☆ SURPRISINGLY IMMUNE TO COLD

Special formulae used in rubber on JOY plugs destined for sub-zero use insures insulation that will not stiffen enough to crack when flexed at −67° Fahrenheit.



RECEPTACLE AN-3114-18

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of the same dimensions as present lead-acid models to facilitate backfitting of aircraft, as both nickel-cadmium and lead-acid types will be used interchangeably for the next few years, until supply permits exclusive use of Ni-Cd type.

After that the choice will be between reducing the size of present batteries by 40% and still having the same ampere-hour capacity, and retaining the present size for Ni-Cd batteries with the potential of 90% more capacity. Latter possibility is more likely with aircraft electrical systems as overtaxed as they are.

The Navy first came upon nickel-cadmium battery of German manufacture in captured Focke-Wulf 190 during World War II and spent one-half million dollars in attempt to copy it without success. When the war ended the French firm, SAFT, bought out the German plant and moved personnel and equipment to France, where combined Franco-German efforts produced a new sealed version.

Good indication of potential of nickel-cadmium design is entry of American Bosch Corp. into battery industry. Bosch has set up a pilot plant for manufacture of aircraft version of Ni-Cd battery and has also developed a similar unit for U. S. Army Ordnance and Signal Corps, where it is now being evaluated for military tank installations and mobile equipment.

BuAer, which is responsible for all military aircraft battery development, is also progressing on a new jet aircraft battery of silver-zinc plate construction. Battery has a potential of 3½ times the capacity of present lead-acid types, but without the long life expectancy of the Ni-Cd battery. Small versions of the silver-zinc battery are being used as a power supply in guided missiles where short-life units (three to five minutes) can be used. • • •

Books

THE AMAZING MR. DOOLITTLE.
By Quentin Reynolds. 313 pp. Appleton-Century-Crofts, Inc. $3.95.

Here is a biography of Lt. Gen. James H. Doolittle well worth your buying and reading. It is the fascinating life story of a man of versatile talents and skills who has been a leading figure in aviation since World War I. Names of many aviation old-timers appear throughout the pages. No matter how well one knows Doolittle, the collection of his life story into one book provides an impact as amazing as the man.

It is one of the best aviation books to appear in years and no bookshelf will be complete without it. Highly recommended both to old-timers who will get a great lift out of it and to the younger element in aviation who should know what it took to bring aviation to its present high state. . . . WWP



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In addition, Allison operates a fourth — *a proving ground in the air.*

At our flight test facility on Weir Cook Airport in Indianapolis, experimental and production models of Allison turbine engines are mounted in flying test beds in latest combat type aircraft and put through their paces under actual flight conditions.

Over and above this, Allison has invested in its own Convair Liner to evaluate and demonstrate the application of Turbo-Prop engines in military and commercial transports. Allison engines have powered the Turbo-Liner on more than 150 individual flights—and the program of testing and development continues.

This actual flight testing of Allison engines helps explain their constant improvement — in thrust, in fuel economy, in endurance and, in fact, all the factors that spell dependable, high-output performance.

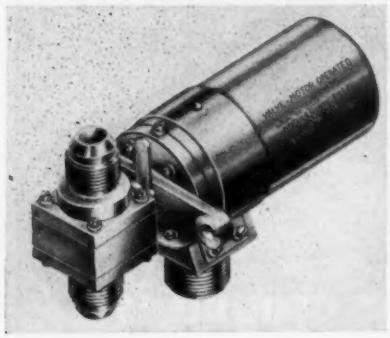
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J35 and J71 Axial, J33 Centrifugal Turbo-Jet Engines, T38 and T40 Turbo-Prop Engines

New Products



Shut-Off Valve. Koehler Aircraft Products Co., Inc. of Dayton, Ohio, has announced the development of a motor-operated shut-off valve which weighs only 15 ounces and is designed for aircraft and guided missile fuel, hydraulic, or pneumatic systems.

The lightweight valve is adapted for use with aromatic and non-aromatic fuels, hydrocarbon and synthetic lubricants, hydraulic fluids, and gases at pressures up to 500 psi, with a temperature range of —65° F. to + 500° F. Normal duty cycle of the valve is one second ON, 19 seconds OFF; a manual override permits opening and closing without electrical power.

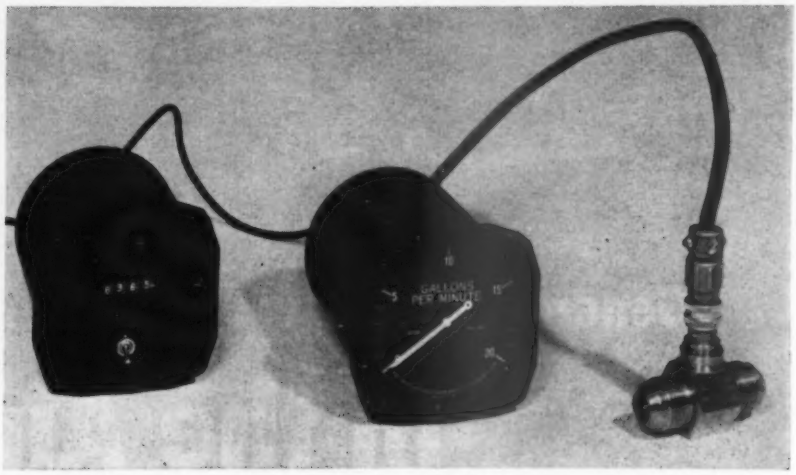
Address: **Koehler Aircraft Products Co., Inc.,** 814 Vermont Avenue, Dayton 4, Ohio.



Inserting Tool. Heli-Coil Corporation of Danbury, Conn., manufacturer of Heli-Coil stainless wire thread inserts, has announced a new molded du Pont nylon inserting tool which carries a lifetime guarantee and is expected to complete from three to five times as many installations as its aluminum and steel predecessor.

Feature of the new tool is the large nylon sleeve which permits a firmer grasp, making insert installations effortless. If the user breaks the nylon sleeve in service, it may be returned to the manufacturer for replacement at no charge.

Address: **Heli-Coil Corporation,** 1285 Shelter Rock Lane, Danbury, Conn.



IN THE SPACE normally taken by two gages on an instrument panel, the miniaturized Potter fuel flowmeter system (shown above) can be installed.

Fuel Flowmeter System Developed

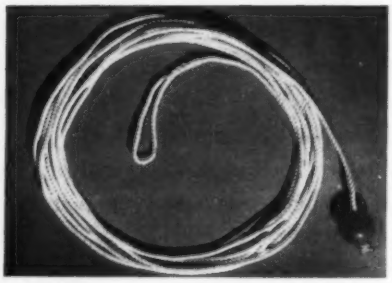
An airborne fuel flowmeter system which uses new magnetic circuitry in place of electron tubes and weighs only five pounds complete has been placed on the market by the Potter Aeronautical Co. When installed, the miniaturized equipment fits the space normally taken by two standard 3½" gages on an aircraft instrument panel.

The Potter system features high accuracy, simplicity, and rugged construction. System components are three: a flow sensing element, a rate indicator, and a totalizer unit. Sensing elements can be varied to measure flows as low as 0.1 gallons per minute and as high as 4000 gpm

In operation, the flow rate indicator electronically converts the a-c signal from the sensing element to a proportional d-c output which is measured and indicated in rate of flow. The totalizer registers the total number of output pulses produced by the sensing element divided by a factor of 32, and the indicated reading is multiplied by a constant factor to obtain volume flow. Indicator can be used with totalizer or as an independent unit.

Power consumption is 7.5 watts for rate unit and 10 watts for totalizer, and system is available for either 400 cycle 115 volt a-c or 24 volt d-c power supply.

Address: **Potter Aeronautical Co.,** 87 Academy Street, Newark, N. J.



Plastic Rope. A plastic rope which is 30% lighter in weight than natural fibre rope of comparable diameter and which has negligible water absorption characteristics has been announced by U. S. Plastic Rope, Inc. It is made from twisted polyethelene film and is available in all standard rope sizes up to one inch diameter.

Initial production emphasis for marketing the new rope is being directed at lifeboat and life raft applications, although two airlines, United and Transocean, are said to have already adopted its use. Among airline uses are those as barrier lines for protection of passengers at airport terminals, and within the airplane, for blocking off rows of seats.

Other advantages cited for the plastic rope over the natural fibre type are its resistance to fungi, mold, or rot, ability to sustain immersion in salt water without ill effects, flexibility at low temperatures, and high electrical insulating qualities. Literature is available.

Address: **U. S. Plastic Rope, Inc.,** 2581 Spring St., Redwood City 76, Calif.



Tight Rivets. Self-sealing "Fluid Tight" rivets for the repair and maintenance of aircraft areas where leakage is a critical factor, such as integral wing fuel tanks, pressurized areas, and hulls and pontoons of flying boats, have been introduced by Pastushin Industries, Inc.

Shown in use by a Capital Airlines mechanic, the new rivets are a modified close-tolerance version of standard flush-head AN 426 or round-head AN 430 aluminum alloy rivets. They are fully approved by the U. S. Air Force, Navy, and Civil Aeronautics Administration.

Full rivet strength of the "Fluid Tight" rivet permits its use in place of standard AD rivets without loss of joint efficiency. Installation calls for conventional riveting tools and methods.

Address: **Pastushin Industries, Inc.**, Dept. T, 501 Prairie Ave., Hawthorne, Calif.



Runway Aid. Tele-Runway, a pilot's aid for planning a landing at strange airports, can be operated by one hand and presents a visual picture of runway direction related to the heading of the airplane at any time. Included on the aid are a full 360° compass rose, proper quadrantal flight altitudes according to CAR Part 60, the revised VFR flight plan sequence, and a list of control tower light-gun signals. Price $1.00.

Address: **Flight Aids**, Waltham, Mass.

GREER TOPICS

Important News of Aviation & Industrial Test Equipment



Greer Vacuum Pump Test Stand *(left)* is used by Trans-Canada to test vacuum pumps up to .5 inches of mercury, 80 cubic feet air per minute capacity. Greer Dual Fuel Pump Test Stand *(right)* accurately tests both engine driven and electrically driven pumps.

How Trans-Canada Airlines Tests Two Components at Once

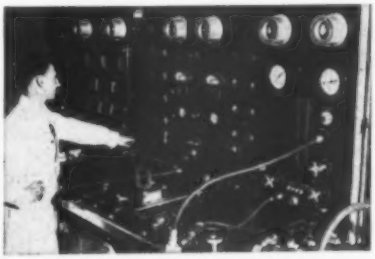
Trans-Canada flies its famous North Star planes on a busy schedule over two continents. The idea is to keep these planes in the air—and this means test and maintenance must keep pace.

The airline asked Greer to adapt its standard test equipment so that one machine could handle two components simultaneously. Photos on this page provide the evidence that this specification was successfully met.

Trans-Canada, like other leading airlines, will vouch for the dependability of Greer equipment. Each machine is slowly and painstakingly produced, carefully tested in each stage of production for highest order accuracy and long service life.

The men who design and build them have many years of very specialized experience in this narrow field. It is experience that is difficult to find, perhaps impossible to match elsewhere.

These men know well that each machine carries their reputation on its nameplate. This is your absolute assurance of complete satisfaction with Greer Test Machines.



Greer Anti-Icing Pump and Distributor Valve Test Machine, shown in operation at Trans Canada, checks anti-icing pump and performance of de-icer distributor valve.

GREER
TEST EQUIPMENT



Greer Stationary Hydraulic Accessories Test Machine fully checks all hydraulic system accessories including the system pump, includes a 25hp variable speed drive.



Greer Hydraulic Pump Test Machine tests aircraft engine hydraulic pumps rated at 3400 psi and flow rates to 10 gpm. Accepted for use by USAF and foreign countries.

Greer Hydraulics Inc. 454 Eighteenth Street, Brooklyn 15, New York

Field Offices: 1908 West Cermak Road, Chicago, Illinois • 25 South Main Street, Dayton, Ohio 2832 East Grand Boulevard, Detroit, Michigan • and sales representatives in all principal cities

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This popularity trend to the MB-3 for company-owned Beechcraft D18's, Aero Commanders, DeHavilland Doves and many other single and multi-engine type aircraft is significant of the outstanding performance of the Flite-Tronics MB-3.



Write on company letterhead for complete product information on the MB-3 Marker Beacon Receiver and CA-1 Audio Distribution Amplifier and name of Flite-Tronics dealer nearest you.

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Terminal. A self-insulated Sta-Kon electrical terminal which will speed up production in aircraft and electronics installations by eliminating the need for using short lengths of plastic tubing over non-insulated terminals has been announced by The Thomas & Betts Co.

The new terminal uses a molded nylon jacket which is integrally keyed to hold it permanently in place. Plastic construction of the protector is said to provide an easy flow of the material without breaking when the terminal is staked to the cable, and to resist the chemical action of lubricants, fuels, and hydraulic fluids in service.

Another advantage of the self-insulated terminal is the compact installation allowing more connections to be made in areas where leads are crowded or overlapping. Color coding for wire size or circuit identifications is accomplished by dyeing the nylon jackets.

Address: **The Thomas & Betts Co.**, Elizabeth, N J.



Fuel Warning. A fuel flow warning switch that is unaffected by pressure or temperature changes and which produces a warning signal when the fluid flow falls below an established level has been introduced by the Revere Corp. of America for aircraft system installations.

Of small size and lightweight construction, the new Revere flow switch also features a balanced assembly that resists vibration and acceleration forces. When fluid flow drops below the pre-set level, an aluminum vane is forced toward the closed circuit position by restoring and calibrating Alnico magnets. In the closed position the vane actuates a hermetically sealed glass switch which sets off the warning signal.

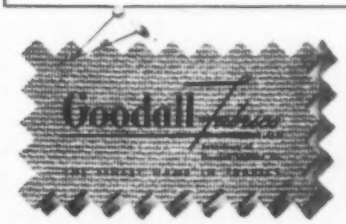
Address: **Revere Corp. of America**, Dept. 12, North Colony St., Wallingford 2, Conn.



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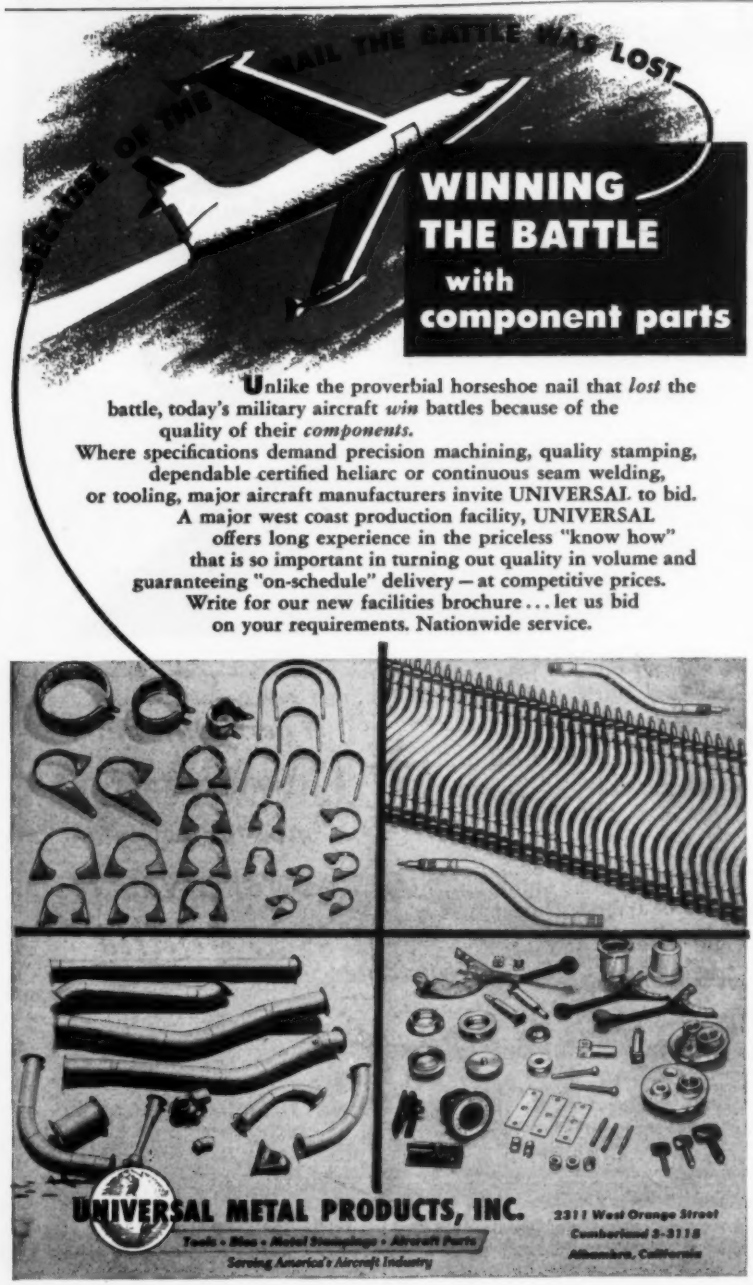
Deburring Tool. A simple tool for deburring of metals and plastics, called the Roth Burring Tool, has been developed by Creative Research, Inc. Made of an aluminum handle and a rotating steel blade, the new tool provides fast, clean deburring of straight, curved, or circular edges.

Address: **Sales Unlimited, Inc.,** 9003 Wilshire Blvd., Beverly Hills, Calif.

Synthetics. Hypalon, a new synthetic rubber for high temperature applications, has been developed by du Pont. A chlorosulfonated polyethylene composition, Hypalon remained serviceable after constant exposure to temperatures of 257°F. for a two-month test period.

Another du Pont product, V-Cockpit Cover No. 3, now available to the civil aircraft industry is a special paulin material for protection of plastic sections of aircraft such as cockpit enclosures. A soft, nappy, fabric-based material, with a high-lustre aluminum top coating, it is designed to eliminate the clouding of plastics due to the hot rays of the sun on ordinary paulins.

Address: **E. I. du Pont de Nemours & Co., Inc.,** Wilmington 98, Del.



Technical Literature

RADIO COMMUNICATION EQUIPMENT: "Consider the Source" is a four-color brochure which describes the facilities, management and engineering background of the Wilcox Electric Co., 1400 Chestnut St., Kansas City, Mo.

•

VIBRATION CONTROL SYSTEMS: Lord Manufacturing Co. of Erie, Penna., has compiled 12-page bulletin 900, to detail its line of vibration control systems. The illustrated catalog includes details on its mountains, snubbings, and couplings.

•

HYDRAULIC PUMPS AND MOTORS: An engineering data book, compiled by Waterbury Tool Division of Vickers, Incorporated, Waterbury 20, Conn., presents technical information and drawings on heavy duty hydraulic pumps and motors.

•

POLYESTER FILM: New 14-page technical bulletin, first in a series, contains data on physical, electrical and chemical properties of Mylar polyester film. Charts, diagrams, tables, and suggested applications. Du Pont Film Department, E. I. Du Pont de Nemours & Co., Wilmington, Del.

•

PUSH-PULL CONTROLS: Simonds Aerocessories, Inc., 105 White Plains Road, Tarrytown, N. Y., has reprinted an article which presents design details of a typical push-pull control problem to illustrate the application of such devices on precision aircraft.

•

SYNTHETIC COMPOUNDS: Bulletin 5201A1, titled "Custom Molded Rubber Parts," is a presentation of the facilities of the Rubber Products Division of the Parker Appliance Company, 17325 Euclid Ave., Cleveland 10, O.

•

SHOCK MOUNTING SYSTEMS: Robinson Aviation, Inc., Teterboro, N. J., has prepared Visualizer Bulletin No. 750 to describe its development of all-metal engineered mounting systems for the maximum vibration isolation and shock protection of electronic equipment.

•

HYDRAULIC PUMPS: Vickers, Incorporated, 1400 Oakman Blvd., Detroit, Mich., has released a new brochure, designated A-5206, which describes its line of 34 standard sizes of fixed displacement hydraulic pumps.

•

ENGINE MAINTENANCE: Two-color, illustrated brochure describes the facilities and background of Aircraft Engine & Parts Corp., and its subsidiary, American Air Service, Inc. Executive offices at 345 Madison Ave., New York 17, N. Y.

•

SEAMLESS TUBING: "Uniform Tubes" is a two-color, four-page folder which describes the products and application of seamless tubing for precision tolerances, manufactured by Uniform Tubes, Level Road, Collegeville 2, Penna.



Connecticut General joins in celebrating Braniff International Airways Silver Anniversary

TWENTY-FIVE YEARS AGO, three Braniff pioneers, with a 4-passenger Stinson, started a career of distinguished public service by establishing a flying service from Oklahoma City to Tulsa. That was the beginning . . . now Braniff flies the Americas from the grain elevators in North Dakota to the meat packing center of the Argentine.



Connecticut General recognized the reliability of air transportation and pioneered in issuing group life insurance to aviation personnel, including pilots . . . without flight restrictions. This was only one of the many pioneering steps Connecticut General has taken in liberalizing life and accident insurance, both on a group and individual basis, for those who fly.

Today, the personnel of 31 airlines is protected by Connecticut General group lines. And we are proud to number Braniff International Airways among our clients.

Connecticut General

- GROUP INSURANCE
- PENSION PLANS
- HEALTH
- ACCIDENT
- LIFE

Airline Commentary



By Eric Bramley

A MAJOR SALES problem has been the number of interline reservations that get lost or delayed. A sure way to lose passenger goodwill. Ten airlines are taking a big step at Chicago next month. They'll start handling such reservations on a new teletype circuit—requests will be routed from one office to another on the local network. Completely eliminates complicated telephone procedures—which is where errors have been made. To activate the network, carriers had to adopt a basic uniform reservation message construction, a major step in itself. The teletype deal is a move to watch. Eventually there'll be installations at other major points.

•

Baggage handling methods are to be studied by a special subcommittee of the Air Traffic Conference's ticketing and baggage committee. This is news, but even more noteworthy is the subcommittee's membership. It's composed entirely of operations men—said to be the first time there's ever been such an ATC group. If there's one place that cooperation's needed between sales and operations, it's on baggage. A commendable development.

•

Two-abreast seating versus 3-and-2 has been the subject of much debate among airlines. Eastern Air Lines is now distributing a new folder entitled "Why the 2-and-3 Seating Arrangement in Our 4-Engine Airliners." Some of the points: 3-2 seating is possible because Constellation cabins are wider; all seats are "the same spacious size;" it's an "ideal grouping for three"; "children get a break"; armrests can be removed so a child can take a nap or a businessman can spread out his papers.

Concluding sentence: "As evidence of Eastern's foresight in pioneering the '2-and-3' seating combination, plans for many of tomorrow's jet airliners incorporate this seating arrangement." This is the first folder we've seen claiming advantages for 3-2 over 2-2.

•

United Air Lines' Tuttle kennels for hauling dogs and cats are paying off. Shippers pay $5 rental, airport-to-airport, between any two UAL points. They also pay excess baggage or air freight charges on the animals. UAL's kennel investment is $6,375. Last year's rental fees totaled $36,115 (five times the investment); baggage and freight charges were $157,418. UAL also collected $185,504 in passenger fares, assuming the passengers used the line because pets were accommodated on the same trips. Continental and Trans-Canada are using the kennels (made by McKee Industries, 8862 Earhart St., Los Angeles). National will add them soon.

•

ODDS AND ENDS: American Airlines is producing a movie showing the role of the local service airlines in the air transport system. . . . One major airline has been wondering whether it wouldn't be a good idea to try to have passengers **keep seat belts fastened** at all times, to prevent unfortunate occurrences in sudden rough air, etc. . . . Harold Harris, president of Northwest Airlines, tells us he has more plans in the making for **revamping NWA.** . . . The Travelfares plan may yet get underway. Proposed by a Seattle outfit three years ago, it would offer **travel in exchange for coupons attached to merchandise** (similar to coupon system used by one brand of cigarettes). Airlines agreed to participate. . . . American Hotel Association, which several months ago stopped honoring air travel cards for **credit on hotel bills,** isn't reconsidering its decision. . . . Still more reports that **travel agents are burned up** over domestic airlines' commission-cutting plan. . . . **Mary O'Connor** has marked her 20th anniversary as a United stewardess (she's now in charge of special flights). **New UAL executive Convair 340** is named Mainliner O'Connor, replacing similarly named DC-3 sold a few months ago.

People



A Triple. Chance Vought Aircraft's general manager, F. O. Detweiler (right) marked his fifth anniversary with Chance Vought division, his 20th anniversary with United Aircraft Corporation, and the 36th anniversary of the founding of Chance Vought, all on June 1. Congratulating him is H. M. Horner, president of United Aircraft Corporation.

MANUFACTURING

Harold R. Boyer, manager of General Motors' Cleveland Cadillac plant, and former chairman of the Government's Aircraft Production Board, has been elected to the board of directors of Lear, Inc.

Roderick D. MacDonald has joined The Weatherhead Company of Canada as general sales manager. MacDonald was formerly assistant director of the Aircraft Division of the Canadian Department of Defence Production.

Bruce Atwater, former vice president of sales for Pacific Airmotive Corp. has been appointed sales manager of Inet, Inc.

John J. Nargi is the new chief engineer of the BG Corporation.

Gordon Israel has resigned as assistent chief engineer of Grumman Aircraft Engineering Corp.



Cannon

Joseph A. Cannon, veteran test pilot, has been appointed chief of flight test for Bell Aircraft Corporation. Cannon succeeds **Jean L. (Skip) Ziegler,** who is still missing and presumed lost as a result of the explosion of the Bell X-2 over Lake Ontario.

Fred W. Soule has been named assistant sales manager of Doman Helicopters, Inc.

Dr. Michael J. DiToro, former associate director of the Microwave Research Institute of Brooklyn Polytechnic Institute, has been named to head elec-

In Ft. Worth, Texas, too, air travelers can step from the plane into a car from Hertz



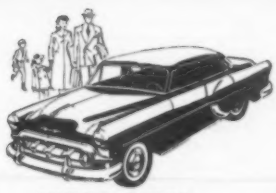


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Yes, the Hertz station at Greater Fort Worth International Airport, Amon Carter Field, Fort Worth, Texas, is just one example of the excellent facilities and superior service offered by Hertz stations everywhere. For your passengers, who expect the best, only Hertz offers them *all* the advantages of car rental service.

Here are the reasons why HERTZ SERVICE is better for the air lines:

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- The Hertz national advertising program consisting of full page advertisements throughout the year in Life, Saturday Evening Post, Collier's, Holiday, National Geographic, Time, Newsweek, and U. S. News & World Report, promotes the Plane-Auto Travel Plan, creates new air travelers, puts new business on your planes and builds Hertz popularity.
- Your passengers, reserving cars from Hertz before they take off, can be sure of fine, new cars that are clean and properly conditioned. All gasoline and oil, Public Liability, Property Damage, Fire and Theft Insurance and $100.00 deductible collision protection are included in the low rate—at no extra cost.
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IMPORTANT!

Encourage your ticket sellers and information clerks to always recommend Hertz Service to your customers. It's the world's finest car rental service . . . and promotion of Hertz Service will pay off in more customer good will and extra business for you. Also, promote this popular service in your national and local advertising, direct mail and counter literature, and other advertising programs.

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For complete information write:

HERTZ *Rent-A-Car* **SYSTEM** Dept. C63, 218 S. Wabash Ave., Chicago 4, Ill., Phone: WEbster 9-5165

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23 CONSECUTIVE ISSUES
McDonnell Aircraft Corp.

22 CONSECUTIVE ISSUES
Pioneer Parachute Co., Inc.

21 CONSECUTIVE ISSUES
Fairchild Aircraft Div.,
Fairchild Engine & Airplane Corp.
General Electric Co.

19 CONSECUTIVE ISSUES
W. Harris Thurston Div.,
Reeves Brothers, Inc.

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Goodyear Tire & Rubber Co.

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The BG Corporation
Greer Hydraulics, Inc.

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Electrical Engineering & Mfg. Corp.
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Pesco Products Div.,
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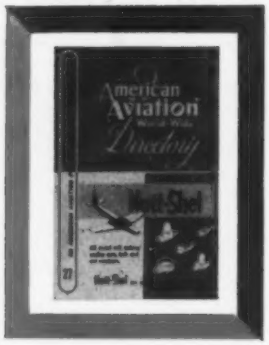
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Durham Aircraft Service, Inc.
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Lear, Inc.
Rohr Aircraft Corp.
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Air Carrier Engine Service Inc.
Bendix Products Div.,
Bendix Aviation Corp.
Esso Aviation Products Div.,
Standard Oil Co.
Teco, Inc.

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The Aerotherm Corp.
Breeze Corporations, Inc.
Consolidated Vultee Aircraft Corp.
Simmonds Aerocessories, Inc.

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Boots Aircraft Nut Corp.
Cannon Electric Co.
Herman Nelson Div.,
American Air Filter Co., Inc.
The New York Air Brake Co.
Scintilla Magneto Div.,
Bendix Aviation Corp.
F. W. Stewart Mfg. Corp.
Stratos Div.,
Fairchild Engine & Airplane Corp.
The Weatherhead Co.

WILL YOUR COMPANY BE IN AVIATION NEXT YEAR?



Here are fifty-two of the companies who form the backbone of aviation in war or peace. Their names and the products they make, the services they offer, are part of the vocabulary of aviation.

Among hundreds of other companies, these have advertised, without exception, consistently and continuously in the past five or more consecutive issues of the aviation world's only all-inclusive company and product directory.

The basic minimum for every sound aviation advertising program is AMERICAN AVIATION WORLD-WIDE DIRECTORY

Fall-Winter **1953** Issue: Closing Date, August 1

Advertising Offices: American Aviation Publications
La Guardia Airport, N. Y. C.

tronic development in the Guided Missiles Division of Fairchild Engine and Airplane Corp.

Joel G. Childs has been appointed to the newly created post of manager of employe education at Jack & Heintz, Inc.

Jackson E. Beighle, assistant sales manager of Sikorsky Aircraft Division of United Aircraft Corp. since 1949, has been promoted to sales manager.

Curtis L. Bates, formerly director of mechanical design for Northrop Aircraft, has been named assistant director of engineering for Ryan Aeronautical Company.

C. Clinton Honeywell has been appointed chief engineer of Servo-Tek Products Company, Hawthorne, N. J.

AIRLINE

Cyrus S. Collins, formerly staff assistant to Douglas Campbell, vice president and general manager of Pan American-Grace Airways, has been elected an assistant vice president of Panagra.

Dr. George J. Kidera, medical director of United Air Lines, is the new president of the Airline Medical Directors Association.

James S. Cobb, public relations vice president for Delta-C&S Air Lines, has been elected chairman of the Public Relations Advisory Committee of the Air Transport Association.

Robert F. Green, Jr., formerly with Eastern Air Lines, has been named to head Air France's newly created Southeast District. Green's district, with headquarters in Miami, will cover Florida, Cuba, Jamaica, and the Bahamas.

Robert S. Grant has been promoted from Miami district sales manager to passenger sales manager for National Airlines. Grant, who moves to the lines' general offices, will be succeeded in Miami by **L. C. Wisenauer.**



Charles W. Short, Jr. celebrates his 25th anniversary as manager of Tulsa (Okla.) Municipal Airport on July 3. One of the nation's best known and most popular airport managers, Short possesses a large collection of photos of early aviation days and personalities which adorn his office walls. He was duly honored at a banquet June 20. July 3 is also the 25th anniversary of the airport itself.



there's more than one way to skin a cat...

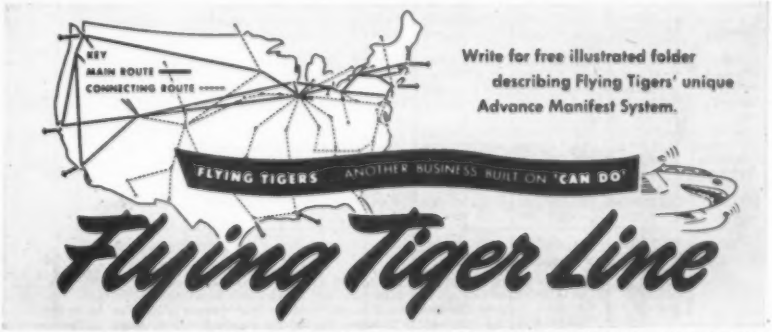
YES, there's more than one way to get your own way. But when you do, we've found it a good idea to see that the other fellow benefits, too.

That's why we're sky high on a four-bit word spelled r-e-c-i-p-r-o-c-i-t-y.

As an airfreight carrier we do quite a bit of hauling (over 41 million ton miles domestically in 1952).

We also steer a substantial amount of business in the direction of other air, land and water freight haulers (almost 400,000 lbs. a month).

We can, and would like to steer even more. How about your rep. and our rep. putting their heads together—wherever and whenever you say.



OFFICES IN PRINCIPAL CITIES • GENERAL OFFICES: LOCKHEED AIR TERMINAL, BURBANK 8, CALIFORNIA • CABLE: FLYTIGER

U.S. Domestic Airline Traffic, March, 1953

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor	Mail Ton-Miles *	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
				%									
American	428,931	236,762,000	338,215,000	70.00	1,463,692	897,432	4,108,327	29,771,164	45,565,656	65.34	7,636,865	7,831,966	96.91
Braniff **	81,253	38,287,000	66,218,000	57.82	156,582	103,466	246,512	4,169,249	7,727,893	53.95	1,888,898	1,982,416	94.73
Capital	165,026	53,361,000	90,512,000	58.95	195,040	257,526	330,498	5,887,927	12,471,239	47.21	2,176,615	2,117,787	96.84
Caribair	12,663	972,000	1,778,000	54.67	1,197	. . . .	1,631	91,970	185,700	49.53	71,949	71,609	99.10
C & S	46,018	17,918,000	27,086,000	66.15	70,686	92,002	109,210	1,989,830	3,308,544	60.14	807,148	845,441	95.13
Colonial	24,590	6,250,000	11,738,000	53.25	13,491	9,900	20,169	641,232	1,264,864	50.70	331,443	335,821	92.83
Continental	29,642	11,586,000	22,346,000	51.85	37,190	15,947	60,802	1,225,380	2,730,152	44.88	685,972	686,987	98.96
Delta	92,049	45,773,000	67,399,000	67.91	175,345	111,580	377,573	5,072,684	8,101,733	62.61	1,706,913	1,746,432	97.17
Eastern	423,274	237,583,000	350,675,000	67.75	504,222	367,781	716,564	26,329,640	46,670,186	56.42	6,203,075	6,145,403	97.01
Hawaiian	28,416	3,742,000	7,146,000	52.36	3,764	. . . .	105,123	421,540	901,450	46.76	313,170	247,358	99.91
National	88,089	67,361,000	88,286,000	76.30	147,601	56,786	491,946	7,576,362	11,185,435	67.73	1,793,096	1,783,845	96.88
Northeast	26,445	5,057,000	9,806,000	51.57	10,804	17,172	20,071	517,282	972,521	53.19	353,721	424,460	81.57
Northwest	72,666	49,355,000	89,866,000	54.92	253,410	126,102	292,530	5,536,150	10,309,414	53.70	1,588,337	1,619,377	96.60
Trans Pac.	10,832	1,392,000	3,670,000	37.93	1,301	51	8,709	118,583	313,030	37.88	131,064	122,456	99.26
TWA	219,791	175,674,000	252,840,000	69.48	977,517	702,768	1,743,502	20,238,759	31,642,842	63.96	5,018,473	5,221,138	95.47
United	292,597	185,013,000	282,921,000	65.39	1,818,463	1,012,886	2,496,089	23,056,763	43,426,412	53.09	6,426,000	6,588,669	96.73
Western	74,468	30,702,000	53,160,000	57.75	147,327	65,558	121,067	3,267,459	6,145,396	53.17	1,263,709	1,277,121	98.48
TOTALS	2,116,750	1,166,788,000	1,763,662,000	66.16	5,977,632	3,836,957	11,250,323	135,911,974	232,922,427	58.35	38,396,448	39,048,286	96.46

* Includes air parcel post.
** Braniff's figures do not include operations of local service route 106 operated by Braniff as result of merger with MCA.
NOTE: Above figures include both scheduled and non-scheduled operations.

U.S. Domestic Revenues & Expenses, Quarter Ended March 31

Airlines	Total Operating Revenues	Passenger Revenues	Mail Revenues	Express Revenues	Freight Revenues	Excess Baggage Revenues	Non-Scheduled Transport Rev.	Total Operating Expenses	Aircraft Operating Expenses	Ground & Indirect Expenses	Net Operating Income Before Income Taxes
American	$ 43,223,879	$ 36,813,158	$ 1,900,061	$ 1,108,551	$ 2,448,346	$ 422,194	$ 167,436	$ 39,350,587	$ 19,867,945	$ 19,482,642	$ 3,873,292
Braniff	7,087,910	6,400,307	246,268	129,148	186,129	58,041	16,293	7,519,116	3,753,307	3,766,809	-431,206
Capital	9,568,914	8,004,042	283,968	309,123	212,564	53,351	500,783	9,763,465	4,600,438	5,163,027	-194,551
Caribair	334,529	285,139	26,955	. . . .	8,651	2,740	1,500	290,245	119,984	170,261	44,284
C & S	3,449,280	3,067,609	177,401	97,556	71,434	26,109	. . . .	3,263,788	1,541,702	1,722,086	185,492
Colonial	1,434,780	1,105,829	220,414	17,833	17,758	9,808	55,535	1,434,408	619,878	814,530	372
Continental	2,491,792	2,044,469	341,309	19,739	49,329	18,164	2,805	2,456,102	1,315,894	1,140,208	35,690
Delta	7,874,719	7,114,917	263,405	121,221	224,158	109,876	8,303	6,654,143	3,460,872	3,193,269	1,220,578
Eastern	37,644,167	35,260,111	651,136	446,527	399,957	708,692	49,422	30,844,165	17,885,810	12,958,355	6,770,002
Hawaiian	1,081,053	719,643	203,247	. . . .	139,735	11,169	2,323	1,094,638	442,718	651,920	-13,585
National	10,217,895	9,264,290	216,816	65,420	331,308	245,741	52,982	7,151,354	3,494,195	3,657,159	3,066,541
Northeast	1,357,119	993,281	294,030	30,621	23,091	3,994	1,745	1,660,562	724,581	935,981	-303,443
Northwest	8,181,231	7,216,039	386,084	142,142	241,533	62,355	31,953	9,644,702	5,007,059	4,637,643	-1,463,471
Trans Pacific	399,053	291,001	91,216	1,143	10,394	1,917	806	425,502	163,257	262,245	-26,449
TWA	29,035,031	25,395,669	1,177,720	882,132	994,473	239,115	46,440	28,455,388	15,218,663	13,236,725	579,643
United	34,501,055	28,702,598	2,368,163	1,179,152	1,413,661	262,267	58,097	32,671,335	15,446,410	17,224,925	1,829,720
Western	4,975,640	4,453,901	199,936	79,676	85,844	27,244	2,652	4,802,625	2,433,269	2,369,356	173,015
TOTALS	202,828,047	177,132,003	9,048,129	4,629,984	6,858,365	2,262,777	999,075	187,482,123	96,095,982	91,386,141	15,345,924

U.S. International Airline Traffic, March, 1953

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor	U. S. Mail Ton-Miles *	Foreign Mail Ton-Miles	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
				%										
American	9,960	7,533,000	10,328,000	72.94	15,836	4,603	475	190,108	1,032,557	1,424,210	72.50	222,439	220,549	100.00
Braniff	2,867	6,667,000	15,638,000	42.63	47,609	7,119	. . . .	87,412	882,393	2,182,993	40.42	357,437	366,660	97.48
C & S	3,058	3,485,000	7,189,000	48.48	5,803	864	. . . .	131,416	498,761	997,311	50.01	153,603	159,715	96.17
Colonial	3,308	2,567,000	4,136,000	62.06	2,186	529	. . . .	8,648	288,733	497,088	58.08	79,534	49,646	97.08
Eastern	10,453	15,119,000	22,133,000	68.31	49,669	. . . .	. . . .	53,542	2,500,794	3,078,226	81.24	362,520	363,338	98.67
National	8,254	3,901,000	8,507,000	45.86	4,014	. . . .	2,187	24,384	430,878	1,048,279	41.10	140,856	142,494	98.15
Northwest	5,524	9,328,000	17,474,000	53.38	117,170	25,865	15,969	633,563	1,799,052	3,025,188	59.47	529,546	532,423	90.44
Panagra	11,828	13,520,000	20,710,000	65.28	30,299	29,283	. . . .	228,723	1,781,858	2,774,964	64.21	512,661	496,220	98.67
PAA														
Latin Amer.	75,706	63,934,000	93,609,000	68.30	260,611	69,272	. . . .	2,491,645	9,245,623	13,612,963	67.92	2,215,691	1,958,036	98.29
Atlantic	56,072	50,829,000	86,984,000	58.43	517,165	140,080	. . . .	1,062,728	7,274,612	11,598,678	62.72	1,490,295	1,398,134	96.92
Pacific	10,645	35,695,000	57,926,000	61.62	424,610	85,670	. . . .	606,448	5,016,575	8,985,888	55.83	1,067,648	1,068,160	99.55
Alaska	3,664	3,839,000	10,472,000	36.66	33,670	. . . .	. . . .	400,478	840,417	1,617,968	51.94	241,520	235,669	99.89
TWA	16,303	39,402,000	54,007,000	72.96	412,753	161,002	. . . .	664,465	5,445,855	7,313,132	74.47	1,211,084	1,205,497	99.18
United	3,798	9,407,000	15,468,000	60.82	63,732	. . . .	. . . .	52,445	1,121,454	2,052,149	54.65	292,522	292,522	100.00
TOTALS	221,440	265,226,000	424,581,000	62.47	1,985,127	524,287	18,631	6,636,005	38,159,562	60,209,037	63.38	8,877,356	8,489,063	97.95

* Includes air parcel post.

NOTE: 1. Above figures include both scheduled and non-scheduled operations.
2. Data in above tabulations were compiled by American Aviation Publications from reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; C & S to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient and Honolulu, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.

U.S. International Airline Traffic, February, 1953

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	U. S. Mail Ton-Miles **	Foreign Mail Ton-Miles	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
American	9,225	7,169,000	9,307,000	77.03	13,890	4,296	224	165,725	966,023	1,277,628	75.61	197,312	193,588	99.48
Braniff	2,841	6,858,000	14,247,000	48.14	45,047	6,659	. . . .	72,900	890,521	1,992,907	44.68	325,971	330,848	98.53
C & S	2,927	3,359,000	6,545,000	51.32	5,226	674	. . . .	87,661	444,657	907,919	48.98	139,870	144,032	97.11
Colonial	2,764	2,156,000	3,280,000	65.73	1,502	362	. . . .	4,195	239,027	393,939	60.68	83,560	45,008	98.09
Eastern	9,395	13,427,000	20,070,000	66.90	43,679	. . . .	. . . .	36,386	1,560,423	2,768,764	56.36	326,663	326,663	99.01
National	8,711	4,149,000	8,452,000	49.09	3,458	. . . .	1,574	22,546	449,406	1,039,845	43.22	141,046	146,216	96.46
Northwest	4,559	7,422,000	15,078,000	49.22	96,833	26,362	14,023	542,536	1,475,941	2,562,054	57.61	456,819	466,775	92.40
Panagra	10,063	11,204,000	18,839,000	59.47	25,848	25,529	. . . .	189,694	1,482,470	2,525,735	58.69	459,349	449,052	98.99
PAA														
Latin Amer.	71,310	57,493,000	83,116,000	69.17	237,910	60,641	. . . .	1,951,613	8,077,417	12,148,861	66.49	1,960,204	1,795,807	98.17
Atlantic	34,744	34,405,000	67,803,000	50.74	405,592	122,881	. . . .	893,912	5,215,689	9,324,935	55.93	1,211,315	1,324,346	90.38
Pacific	9,130	30,042,000	47,521,000	63.22	352,692	66,657	. . . .	509,946	4,201,902	7,344,218	57.21	884,262	885,921	99.45
Alaska	2,997	3,300,000	9,175,000	35.97	31,805	. . . .	. . . .	317,731	695,120	1,305,952	53.23	208,420	206,146	99.62
TWA	10,592	26,819,000	44,738,000	59.95	368,370	136,289	. . . .	601,992	3,993,584	6,181,395	64.61	1,085,589	1,091,394	99.38
United	3,241	8,028,000	12,363,000	64.94	52,050	. . . .	. . . .	38,981	949,406	1,663,377	57.08	*	238,506	95.70
TOTALS	182,499	215,831,000	360,534,000	59.86	1,683,902	450,350	15,821	5,435,818	30,641,536	51,437,529	59.57	7,460,380	7,644,302	96.83

* Figure not available.

** Includes air parcel post.

NOTE: Above figures include both scheduled and non-scheduled operations.

U.S. Local Service Airline Traffic, February, 1953

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton Miles	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
Allegheny	12,380	1,795,000	4,904,000	36.61	4,512	10,167	. . .	185,969	560,503	33.18	233,543	244,040	94.22
Bonanza	4,993	1,208,000	2,876,000	42.00	1,549	2,069	2,141	121,499	319,909	37.98	115,065	117,488	97.72
Braniff *	3,849	671,000	1,676,000	40.04	1,581	2,400	3,532	71,463	174,859	40.87	72,858	77,238	94.33
Central	3,675	513,000	3,083,000	16.64	2,834	1,020	2,761	55,505	352,394	15.75	146,831	147,672	99.43
Frontier	9,403	2,499,000	7,392,000	33.81	8,026	5,713	32,104	284,235	704,030	40.37	354,551	352,912	96.98
Lake Central	2,333	383,000	1,478,000	25.91	975	4,108	. . .	40,369	170,159	23.72	71,048	70,832	96.07
Mohawk	9,873	1,620,000	3,316,000	48.85	2,625	4,961	4,608	159,868	386,701	41.34	157,887	161,384	93.37
N. Central	10,505	1,647,000	5,230,000	31.49	6,473	10,107	. . .	172,354	596,301	28.90	248,732	298,368	83.27
Ozark	7,480	1,269,000	5,376,000	23.60	3,414	4,679	. . .	126,836	530,041	23.93	215,027	218,624	97.62
Piedmont	17,118	3,665,000	8,755,000	41.86	7,118	7,816	14,745	380,357	1,000,558	38.01	416,899	423,218	97.90
Pioneer	13,772	3,740,000	9,820,000	38.09	10,420	2,569	13,011	383,814	954,741	40.20	272,783	284,592	95.85
Southern	8,214	1,420,000	4,801,000	29.58	6,358	5,172	. . .	147,869	520,237	28.42	228,625	237,561	96.06
Southwest	11,349	2,226,000	4,096,000	54.35	6,178	3,333	13,364	235,205	468,091	50.25	195,038	197,654	96.57
Trans-Texas	6,123	1,324,000	4,393,000	30.13	5,048	2,501	6,319	140,045	502,003	27.89	209,168	215,824	95.98
West Coast	10,195	1,814,000	5,465,000	33.19	3,133	1,527	5,177	176,633	486,485	36.31	260,859	267,512	96.99
Wiggins	211	20,000	120,000	16.67	68	165	. . .	2,064	12,753	16.18	30,255	43,040	69.47
TOTALS	131,473	25,814,000	72,781,000	35.47	70,312	68,307	97,762	2,684,085	7,739,768	34.68	3,229,169	3,357,959	95.00
Helicopter Mail Service													
HAS	. . .	. . . .	. . . .	. . .	2,225	. . .	. . .	2,225	4,999	44.50	24,873	26,387	94.26
Los Angeles	. . .	. . . .	. . . .	. . .	3,567	. . .	. . .	3,567	9,656	36.94	23,395	27,224	85.94
N.Y.Airways	. . .	. . . .	. . . .	. . .	1,909	. . .	39	1,948	7,635	25.51	19,087	22,016	86.70

* Figures cover operations of local service route 106 operated by Braniff Airways as result of Braniff-MCA merger, effectuve Aug. 16, 1952.

NOTE: Above figures include both scheduled and non-scheduled operations.

U.S. Local Service Airline Traffic, March, 1953

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton Miles	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
Allegheny	13,188	1,910,000	5,524,000	34.58	5,238	11,465	. . .	198,950	631,356	31.51	263,065	270,266	95.11
Bonanza	6,583	1,579,000	3,273,000	48.24	1,688	1,793	2,567	156,964	326,359	48.10	130,913	130,076	98.35
Braniff *	3,916	802,000	1,877,000	42.73	1,921	2,477	3,535	84,352	195,878	43.06	81,616	85,808	95.11
Central	3,873	524,000	3,343,000	15.67	2,762	1,452	2,133	56,397	332,056	14.76	159,190	163,494	97.37
Frontier	10,523	2,698,000	8,094,000	33.33	8,717	5,552	39,402	310,998	770,602	40.36	386,243	390,724	97.94
Lake Central	2,452	378,000	1,487,000	28.24	893	4,001	. . .	39,960	169,583	23.56	70,807	76,508	91.06
Mohawk	11,179	1,829,000	4,311,000	42.43	3,022	6,735	5,063	182,435	440,742	41.39	179,615	178,357	95.74
N. Central	13,055	2,065,000	6,084,000	33.94	7,724	11,093	. . .	210,828	690,665	30.53	289,703	330,336	87.70
Ozark	7,887	1,327,000	5,439,000	24.40	3,437	4,822	. . .	132,216	536,339	24.65	217,582	242,048	89.64
Piedmont	17,851	3,773,000	8,960,000	42.11	7,245	8,086	11,876	388,248	1,023,948	37.92	426,645	469,150	90.37
Pioneer	14,006	3,869,000	9,644,000	40.12	10,545	3,266	16,438	399,940	937,647	42.65	267,899	272,946	98.15
Southern	9,072	1,552,000	5,244,000	29.59	7,267	6,263	. . .	162,002	568,217	28.51	249,711	263,782	94.67
Southwest	14,107	2,668,000	5,267,000	50.66	6,934	3,132	11,804	276,166	601,992	45.88	250,830	254,029	98.03
Trans-Texas	6,875	1,514,000	4,961,000	30.52	5,649	2,620	9,045	161,716	567,840	28.48	236,600	238,948	98.42
West Coast	13,196	2,362,000	6,109,000	38.66	3,561	2,054	3,471	225,937	544,091	41.53	291,131	292,175	98.91
Wiggins	117	12,000	104,000	11.54	54	149	. . .	1,246	11,063	11.26	25,939	47,047	55.13
TOTALS	147,880	28,862,000	79,721,000	36.20	76,657	74,960	105,334	2,988,335	8,398,378	35.58	3,527,489	3,705,694	94.35
Helicopter Mail Service													
HAS	. . .	. . . .	. . . .	. . .	2,396	. . .	. . .	2,396	5,575	42.98	27,790	29,930	92.86
Los Angeles	. . .	. . . .	. . . .	. . .	4,804	. . .	. . .	4,804	12,430	38.65	30,200	31,324	96.41
N.Y.Airways	. . .	. . . .	. . . .	. . .	2,835	. . .	75	2,910	9,675	30.07	24,189	32,008	75.57

* Figures cover operations of local service route 106 operated by Braniff Airways as result of Braniff-MCA merger.

NOTE: Above figures include both scheduled and non-scheduled operations.

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CAB Cuts $10 Million From PAA

Critical of what it termed "over-scheduling," the Civil Aeronautics Board early this month disallowed $10,000,000 in expenses reported by Pan American World Airways for past-period operations in Latin America. Result was a sharply-curtailed mail rate for PAA's LAD services from April, 1948, through December, 1951.

Total final mail compensation fixed by CAB was $25 million, or about $826,000 more than Pan Am had previously received under temporary rate orders. But the $10 million disallowance meant approximately that much less mail pay expected by the carrier.

Approximately one-third of the amount disallowed was attributed by CAB to "capacity in excess of reasonable requirements." Board said too much service was provided in such areas as New York-San Juan, San Juan-Buenos Aires, New York-Buenos Aires (B-377 operations), and Balboa-Port of Spain.

Board also lopped off $2.1 million in depreciation charges, $1.5 million for "excess Convair 240 aircraft current maintenance expenses," and $1 million for "selling expenses in excess of the level reasonably recognizable under economical efficient management."

No final rate was fixed for PAA's LAD operations for the period beginning with January 1, 1952. This rate is the subject of conferences between CAB, the PO and the airline at present. A determination, however, is expected in the next few months.

Fight Coming on Short-Haul Coaches

The biggest coach fare wrangle in over two years is brewing at CAB over the level of fares to be charged on high-density short-haul segments of through coach flights. So serious is the problem that one Board member claims the "whole coach picture could go out the window" unless CAB thwarts the latest airline proposal.

Reference was to an American Airlines' tariff, scheduled to become effective June 28, to introduce a new level of fares to apply on high-density segments, such as Boston-New York, of through coach flights. AA's new fares, at about 5.5c per passenger-mile, are one-half cent under first class fares and roughly one full cent over the high-density coach level.

The point is important to the airlines. Boston-New York, for example, is the heaviest traveled segment on the air route map. Boston, like any other city, is entitled to at least long-haul coach service. But to provide it, airlines are faced with what they feel would be serious diversion from first class services on the short-hauls to New York and Washington.

Initially, American and Eastern filed coach tariffs for long-haul business out of Boston, which by omission made first class fares applicable on the short-hauls to New York and Washington. CAB frowned and an investigation was ordered.

American then countered with its "new level" of coach fares for the short-haul segments in the Boston-Washington area, slightly under the first class level. CAB will have to pass on the tariff this month. Board feels discrimination may be involved.

A short-haul area carrier, Northeast Airlines, voiced perhaps a significant protest against the whole business when it said any tampering with the fares between important short-haul points could result in a general fare reduction.

A CAB member, on the other hand, thinks just the opposite. If the new level is approved, he claims, it will be "only a matter of time" until the airlines say the fare differential between coach and first class is not great enough—hence, an increase in first class is necessary.

CAB Miscellany

Philippine Air Lines' **Manila-U.S. foreign air carrier permit** has been amended by CAB, with the approval of President Eisenhower, authorizing service between San Francisco and Mexico City.

• •

Allegheny Airlines' recently-revised certificate has been amended by CAB to make **Altoona, Pa., and Cumberland, Md., alternate intermediates,** thereby creating two segments between Hagerstown and Johnstown, one via Altoona and the other via Cumberland.

A proposal under which Provincetown-Boston Airlines, an air taxi operator, would transport **mail without subsidy** under arrangement with Northeast Airlines is currently being studied by CAB and the Post Office.

• •

CAB has ruled that its new **Domestic Freight Forwarder Investigation** will produce exemption authorizations but no certificated services.

• •

CAB has discarded a proposal to require airlines to maintain **minimum insurance coverage.**

CAB News

AS OF NOW

Examiners' reports are due this month in the **Reopened Southern Service to the West Case** and the **Colonial Airlines Merger Investigation.** The former centers around a potential southern transcontinental interchange service via Eastern, Braniff, and TWA. The latter, a Colonial-Eastern merger agreement and a CAB investigation into a possible Colonial-National merger.

Hearings in the **Slick-Flying Tiger Merger Case** have been again set back, this time until June 29. Delays are procedural, however, as CAB has repeatedly stated its desire to expedite the case.

Hearings in the **Large Irregular Air Carrier Investigation,** in session in Washington and Miami since last September, move to Los Angeles in mid-July. Over 20 carriers will present their cases there, with the case then moving to Seattle.

The **North American Merger Proceeding,** in which Twentieth Century, Trans-National, Trans-American and various affiliated groups would merge, will be consolidated with the **Large Irregular Investigation,** if a North American proposal is granted by CAB. It would then be aired at the Los Angeles hearings in July or August.

If hearings are required in the **Reopened New York-Balboa Case** they will begin after Labor Day. But they may be avoided if all parties can agree.

RECENT CAB DECISIONS

• **Southwest Airways** final mail rates fixed in line with a previous show cause order which refused any added compensation for limited Martin 2-0-2 operations. There were no objections to the CAB proposal, which fixes SWA's annual mail pay at $1,042,919.

• **Shulman, Inc.,** Philadelphia forwarder, granted an air freight forwarder letter of registration after Board found that alleged unlicensed activities were not sufficient to block licensing at this time.

• **American Airlines** denied an exemption to operate non-stop coach service between Chicago and San Francisco/Oakland. Issues on permanent authorization deferred for consideration in certificate amendment case.

CAB CALENDAR

June 22—Hearing in Trans-Pacific Certificate Renewal Case. Washington, D. C. (Docket 5031 et al.)

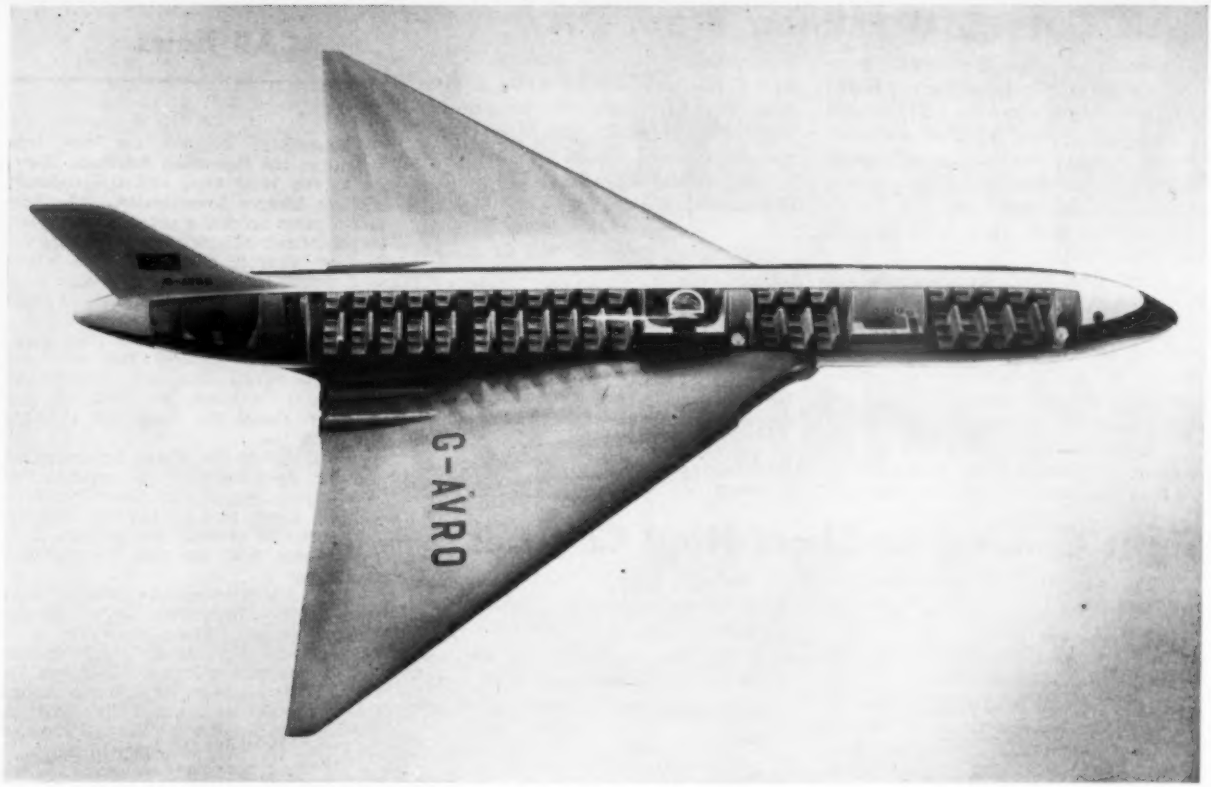
June 23—Hearing in North American Airlines Enforcement Proceeding. Los Angeles, Calif. (Docket 6000).

June 25—Hearing in United Air Lines Rock Springs Suspension Case. Rock Springs, Wyo. (Docket 5995).

June 29—Hearing in The Flying Tiger Line—Slick Airways Merger Case. Washington, D. C. (Docket 6047).

July 6—Hearing in Tariff Liability Rules Investigation (Personal Injury Rules). Washington, D. C. (Docket 6149).

Aug. 17—Hearing in Ozark Airlines Certificate Renewal Case. Washington, D. C. (Docket 5988).



VIEW OF MODEL shows portion of fuselage cut away to show interior.

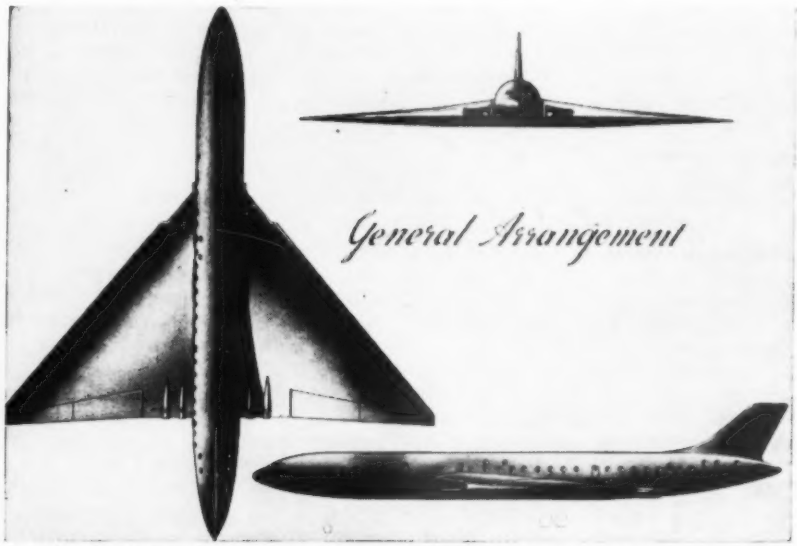
First Details of Avro Atlantic Jetliner

BRITAIN'S Avro Atlantic delta-wing jetliner project will be able to fly from New York to London in five to 5½ hours; westbound the trip will take 6½ to seven hours according to operating data just released by A. V. Roe. Direct operating costs of the transport will be eight to 11 cents per long ton/statute miles and less than one cent per passenger/statute mile, the company claims. With stage lengths of 1500 to 4000 statute miles, payload varies from 20 to 10 tons.

Specs for the Atlantic are: Span, 121 feet; length, 145 feet; fuselage diameter, 12½ feet; gross take-off weight, 200,000 pounds; payload, 20,000-45,000 pounds; cruising speed, 600 mph (Mach .9); cruising altitude, 40,000-45,000 feet; minimum runway class, ICAO Class C; minimum runway strength, ICAO Class 4; pressure differential, 8.8 pounds per sq. in.; capacity—cabin, 5800 cubic feet; baggage, 1930 cubic feet; passenger capacity—basic, 94; luxury, 74; tourist, 113 (three plus three abreast).

A. V. Roe Ltd. has made no reference to the powerplant of the Atlantic other than stating that, like the Avro Vulcan delta bomber, the engines are buried in the wing, which also carries the fuel. Although the Atlantic is described as a civil development of the Vulcan, the jetliner is much larger than the bomber.

Indications are that an Atlantic prototype could be flying by the end of 1956 and that production aircraft could start coming off the line two years later. Nevertheless, as yet no plans have been announced by A. V. Roe for prototype construction. • • •



LIKE THE AVRO VULCAN, the Atlantic has its engines buried in the wing.

International Report



SNCA du Sud-Ouest's SO 6025 Espadon experimental aircraft is powered by a bi-fuel rocket in addition to a French license-built Rolls-Royce Nene turbojet.

Australian Carrier Selling Out?

Australian National Airways, one of the world's largest non-American privately owned airlines, is offering 12 Douglas DC-3's for sale through its U. S. representative. The company recently sold three of its DC-3's against payment in sterling. These developments highlight reports that ANA is in the process of going out of business.

I. N. Holyman, head of the company, stated recently that since the establishment of the government-owned Trans-Australian Airlines it had been increasingly obvious that Australian air traffic cannot support two major airlines.

Nevertheless it is claimed that the Australian government's present policy definitely favors ANA remaining in business. There have been several concessions to ANA in recent modifications to the 15-year "rationalization" agreement between ANA and TAA enacted by the government last November. Before the agreement was worked out ANA strongly advocated a merger with TAA but the government rejected the idea, preferring to place the privately-owned company on a "fair competitive" basis with TAA.

Subsequently ANA lobbied for a merger with Qantas Empire Airways, British Commonwealth Pacific Airlines, and TAA, but its proposal was received unenthusiastically by the government.

As an alternate to going out of business ANA may decide to concentrate on long-distance routes with four-engine equipment (it owns nine DC-4's). The company gave up an option on six Vickers Viscounts at the end of last year and more recently has been pondering the purchase of a number of Handley Page Hermes from BOAC (at about $1,000,000 each).

ANA's real interest, however, is in U. S. equipment (the company was one of the first foreign airlines to fly DC-2's) and has long been eager to purchase modern Douglas or Lockheed transports. To date it has been unable to obtain the necessary dollars to do so.

Meanwhile TAA has announced that it will have a number of surplus DC-3's next year when its Viscounts come into service. The company recently sold two Lockheed Lodestars to an American dealer for dollars.

The whole Australian transport picture will be affected by a study of rationalization methods to achieve the most economical handling of passengers and freight. The study is being conducted by the Australian Transport Advisory Council, comprising state and federal ministers.

At present heavy losses are being incurred in keeping air, rail, and sea services operating under fierce competition. Under the proposed plans, unprofitable airline services duplicated by rail and sea services would probably be declared "luxury services" and would be required to operate without state or federal aid. In every case where competition occurs, a survey will be made to establish which is the most economical and satisfactory means of transport for passengers or particular types of freight.



HA-200 C-1 trainer (shown above in model form) is one of two prototypes being built in Spain by La Hispano Aviacion, S. A. This two-place plane will have a 500-hp ENMASA Sirio engine whereas the other—the HA-200 E-1—will have a 750-hp ENMASA Beta.

London Airport Tops In Passenger Movements

London Airport (Heathrow) handled more passenger movements than any other European airport in 1952, with a total of 860,760, followed by London-Northolt (773,012), Paris-Orly (600,336), Paris-Le Bourget (573,-109), and Amsterdam (485,454).

In commercial aircraft movements, London-Northolt headed the list.

INTERNATIONAL BRIEFS

MANUFACTURING

First **Australian-built F-86** Sabrejet fighter will fly next month. Powered by a Rolls-Royce Avon, it is expected to have a better performance than American F-86's.

• •

A more powerful version of the **Orenda turbojet** is being developed by Avro Canada under the designation TR 8.

• •

First production Hawker Hunter fighter flew last month. Initial deliveries will go to the RAF, with subsequent production assigned to NATO nations in continental Europe.

• •

Latest version of the **Vickers Supermarine Swift,** the F4, has started its flight test program. It has more powerful armament than previous Swifts.

• •

The 500th Beaver transport produced by de Havilland-Canada has been delivered to the government of the Falkland Islands. About 300 of the Beavers built to date are the L-20 model for the U.S. Army and Air Force, while the remainder are DHC-2 civil models.

• •

Gross weight of future production **Percival Prince transports** will be about 12,500 pounds against the 11,500 pounds of the present production model. Stressed to 13,000 pounds, this new Prince, the Series V, and its military version (known as the Pembroke) will have a span of 64′ 6″ against the 56-foot span of previous models.

• •

Flight tests of a **de Havilland-Canada Beaver** powered by an Alvis Leonides are proving successful. The Leonides has a longer, slimmer nose than the standard Wasp-powered version. Only other difference is a greatly enlarged fin and rudder.

• •

Argentina's State Aircraft Plant at Cordoba is building an **all-weather version** of the **Pulqui jet fighter.** The Pulqui planes are designed by Germany's Professor Kurt Tank (formerly Focke Wulf's chief designer) who has **62 German aircraft engineers** working with him in Argentina.

TRANSPORT

Fifth Breguet Deux Ponts has been delivered to Air France and the sixth is scheduled for delivery at the end of this month. Four more of the double-deck transports will be delivered by the end of the year and the final two before April 1, 1954.

• •



France's latest ground attack plane is the Potez 75, a model specially designed for "tank busting" yet having the take-off and landing qualities of a personal aircraft. A 450-hp Potez 8D engine drives a pusher propeller.

Tourist service between **England and South Africa** will start October 1. South African Airways' Lockheed Constellations (with 58 seats) will provide a thrice-weekly service. There will also be four first-class flights weekly, operated jointly by SAA and BOAC with de Havilland Comets.

• •

Aerolineas Argentinas will open a route to **Mexico City from Buenos Aires** via Quito and Guatemala, according to an unconfirmed report.

• •

Tasman Empire Airways plans to serve Honolulu by extending its present island-hopping New Zealand-Tahiti flying boat service to Hawaii.

• •

Air Ceylon will end its international operations to Europe and Australia effective September 1 and will merely serve **Ceylon and the Indian mainland.**

• •

Australia's Ansett Airways is buying Trans-Oceanic Airways' assets with **insurance money** received after the loss of a flying boat in Brisbane River last year. Trans-Oceanic, now in liquidation, has only one boat (a Short Sandringham), but the deal will give Ansett the Trans-Oceanic base at Rose Bay, Sydney, and the routes to Lord Howe Island and Hobart.

• •

Conversion of Japan Air Lines' **Douglas DC-6A into a DC-6B** passenger plane is scheduled for completion this month. The ex-Slick transport will be used initially for **crew training and route surveys.**

• •

Eagle Aviation, British independent, has started a weekly London-Munich-Belgrade service with **Vickers Vikings.**

• •

BOAC subsidiary **Aden Airways** has bought control of **Arab Airways,** Jordan airline with headquarters at Amman.

• •

An Argentine all-cargo carrier known as **Lloyd Aereo Pancontinental** is reported under formation in Buenos Aires.

• •

British independent airline **Air Charter Ltd.** has been given a British government contract to fly military personnel between **London and the Fiji Islands,** a route mileage of 13,319 miles. Avro Yorks are used.

MILITARY

An Aero Commander has been purchased by the **Philippine Air Force** for communications work.

• •

Vampire jet fighters and trainers are being acquired by the **Southern Rhodesian Air Force.**

• •

Britain's Royal Navy will soon form its first de Havilland Sea Venom and Fairey Firefly 7 squadrons.

• •

First of 48 Australian-built English Electric **Canberra jet bombers** is now being flight tested prior to delivery to the RAAF.



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Books

FLYING SAUCERS *by Donald H. Menzel. 319 pages, illustrated. Published by Harvard University Press, Cambridge, Mass. Price $4.75.*

The title of this book is misleading in that only a very small portion of it really discusses flying saucers. Dr. Menzel's main thesis is that all reports on flying saucers are due to misinterpretation of conventional objects, to hoaxes, or to optical illusions and other meteorological phenomena. The bulk of the book is devoted to a discussion of how such phenomena could look like and be reported as flying saucers.

An illustration of the type of reasoning used by Dr. Menzel, a professor of astrophysics at Harvard, is given in his treatment of the New Mexico night sighting by another prominent astronomer, Clyde Tombaugh, of what looked like about six "lighted windows" in a silent fast-moving aircraft, otherwise invisible except for a faint glow something like a wake.

To explain this sighting according to his theory, Dr. Menzel says "I can only hazard here the same guess I made about the Lubbock lights—that a low, thin layer of haze or smoke reflected the lights of a distant house . . . The haze must have been inconspicuous to the eye, because Tombaugh comments on the unusual clarity of the sky." This example of warping of the reported facts is characteristic of the entire book.

There are 96 unindexed illustrations, of which *only one* (on page 35) is a photograph taken of a flying saucer. The others, chosen to show what Dr. Menzel thinks saucer reports are due to, include photographs of cloud formations, mirages, the aurora borealis, snowflakes, sunspots, and sunshine on a Venetian blind. He includes medieval woodcuts, Biblical pictures, drawings of a Martian, and a snapshot of himself staring at a burning match while he stirs his coffee

In discussing his own sighting of a saucer in New Mexico, Dr. Menzel says "I do not believe they were missiles or messengers or vehicles from Russia or any other foreign country." This sidesteps the possibility that they might be American guided missiles or secret aircraft. This possible explanation is not mentioned at all in the book, except for a single line stating that "Suggested identifications included . . . a secret plane called 'The Flying Wing' . . ."

As Dr. Menzel says in another chapter, "The scientist . . . has a responsibility not to suppress a view merely because it does not agree with his own."

The observed properties of the "saucers" could certainly apply to pilotless, radio controlled, guided missiles, which have been under intensive development in this country during the period in which saucers have been seen. The Navy's piloted circular flying wing flew successfully in 1947, and was not officially "dropped" until March 1948, a year after the saucers were first widely reported.

Recent developments in jet engines, automatic computers, servos, guidance systems, all should be considered. The saucers could well be part of a superior system of anti-aircraft defense, and this would account for the official secrecy and the devious statements of the USAF.

In this book there is no scientific analysis of the reports which have been collected. The only graph in the book is a bar chart of the frequency of sightings, by months, which, it should be noted, is the only type of chart which the Air Force has put out in its own study. If Dr. Menzel had included maps of the location of recent saucer sightings with respect to airways radio facilities, they would have shown the significant way in which even observations from the ground cluster along civil airways radio beams and around omnidirectional range stations. These omnidirectional ranges, incidentally, were first put into service in 1948.

Map study would also show that many saucer "flight paths" (sightings made in one day, in sequence) seem to be in line with Naval Air Stations throughout the country.

Dr. Menzel correctly finds that the "green fireballs" seen since 1947 in New Mexico are a different class of objects from the hovering disc-shaped saucers. While he states that they are meteors, he completely fails to mention the "artificial meteor" program started by the government at the White Sands Proving Grounds, in New Mexico, in December 1946.

This program, described openly in *Ordnance* magazine, July-August, 1947, involved sending copper-lined shaped charges up in V-2 rockets. The charges, detonated at altitudes above ten miles, would eject their liners as ultra-high-speed particles, which would be heated by air friction and become artificial meteors, looking and behaving just like real meteors.

It must be considered a fault in Dr. Menzel's book that no space is devoted to the remarkable relationship, in time and in location, between the artificial meteor program and the appearance of the mysterious green fireballs.

Dr. Menzel's scientific appendix, on mirage theory, is full of impressive equations, but is unconvincing to a scientific reader because no numerical examples are worked out using temperature inversion data taken at the time of a saucer sighting (although such data are readily available.) The fact is that the temperature differences measured were much too small to have any effect.

It is to be hoped that a truly impartial saucer book will yet be written. Dr. Menzel's book is a good example of how it should not be done.—L. D.

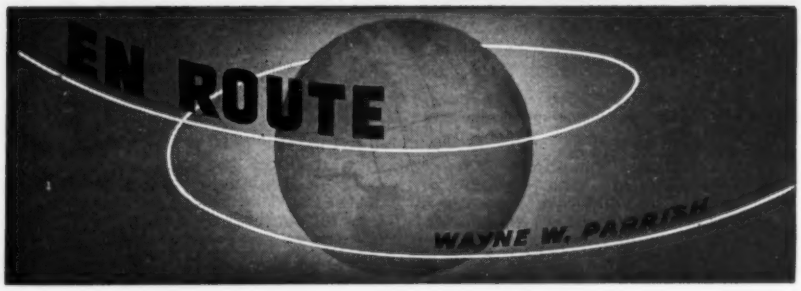
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Obituary

RAYMOND B. KIRSNER, 47, Deputy Undersecretary of Commerce for Transportation, succumbed after a heart attack on June 6 at Mary Immaculate Hospital in Jamaica, N. Y. He was in New York on official business.

A resident of Arlington, Va., Mr. Kirsner had been in government service for 25 years. He is survived by his widow, Hilda Mae Kirsner.



Good Boise Terminal. It was 10:40 on Sunday morning when I arrived at Boise, Idaho, on my West Coast Airlines flight over the Snake River cutoff from Spokane, and I was at once impressed by Boise's new terminal. Modern in design and functionally arranged, it rates with Yakima as being excellent in its class.

One feature I liked especially was that the coffee shop was raised about three feet off the main lobby floor. Thus the dining facilities were an integral part of the main terminal floor and yet as you walked in the lobby you couldn't actually see the tables. All the diners had a good view of both the ramp and the lobby itself. It's a good arrangement.

Like many another town on Sunday, Boise was quiet and sleepy. I took the limo to the Hotel Boise and checked in and had a second breakfast and sent off some notes to the office and then tried to reach **Gwin Hicks** who was the sparkplug in Empire Air Lines until its merger with West Coast. I was disappointed to find that he was in Twin Falls on some sort of business.

Joyriding. I went back to the airport in midafternoon to fly WCA to Idaho Falls via Twin Falls, Burley-Rupert, and Pocatello and then back to Boise—four hours and 20 minutes of Sunday afternoon joyriding. But I wanted to complete my tour of WCA and I know of nothing better to do than go flying out in the west where the scenery is always spacious and often very good. **Capt. Fred Stanley** was the captain and we had a cup of coffee and a piece of pie at the turnaround in Idaho Falls.

This is the thin end of WCA's system, although Twin Falls and Pocatello develop a fair turnout of business. But Idaho Falls is hardly a worthy terminus for a system, even though the connections there with Western Air Lines produce a small amount of traffic. CAB's problem will be to give WCA an adequate eastern terminal. Irrigation is opening up some new farming territory; otherwise the land is very arid and the population is on the sparse side. I was back in Boise by eight o'clock, had myself an extremely poor steak for dinner, and turned in after walking around the small business section.

Old Oregon Trail. Up early the next morning for a 7:40 takeoff to Yakima and Portland, I had **Capt. Jack Wise** for my captain, and I had the great thrill of seeing the few remains of the old Oregon trail between Ontario, Idaho, and Baker, Oregon. Jack Wise spotted those trails several years ago and has them well located. The old wagon wheels dug deep into the arid soil and there the tracks have remained midst the sage brush through a century.

The ordinary guy like myself wouldn't have known what they were, but Jack Wise is a student of the pioneering days and I'm sure he's absolutely right that these are the remnants in the soil of the covered wagon trail to Oregon.

After stopping at La Grande, WCA goes next to Pendleton, a famous old name in the west, especially for early airline days. Here the wheat country resumes and from Pendleton to Walla Walla and thence to Kennewick-Richland-Pasco there's plenty of it in those rolling hills. But Pasco is the center of a new industrial empire, featured by the Hanford atomic energy projects, and this area is generating all sorts of new air traffic. Industry is beginning to blend with agriculture to provide a more balanced economy.

On to Portland. On to Yakima and, for about the first time on WCA, I didn't have to change planes. There must have been four or five planes on the ramp because Yakima is the junction point for four WCA routes. After a cup of coffee our flight took off for Portland, and thanks to good weather the views of the snow-capped mountains were excellent.

From the air Portland and the Columbia River comprise one of the prettiest pictures in the airline network. On the ground I contacted **L. W. ("Rusty") Rostad**, WCA's station manager, and went to lunch at Waddle's, a very popular restaurant not far from the airport, with him and **Dave Taylor**, WCA mechanic and a regular reader of this page.

New United Route. In midafternoon I took off on what to me was a brand new route—the United Air Lines local from Portland to San Francisco via Bend-Redmond, Klamath Falls, and Sacramento. For scenery I can recommend it most highly. Of course the United counter will want to sell you a ticket on a DC-6 nonstop, but go ahead and argue it out and insist on the DC-3 even though it takes hours longer. I never knew what the eastern side of those mountains looked like until this trip, and I must say that I am getting more enthusiastic about Oregon all the time.

It's sort of an inland empire east of the mountain range. There's lumbering and some agriculture and there must be mighty fine fishing and hunting. Bend, Redmond, and Klamath Falls are all small towns, but the air traffic seems fair enough and when the weather is good you'll have to go a long way to find a more attractive trip paralleling the snow-covered range on the west and a scattering of mountains to the east.

Casa Mateo Inn. It was about nine o'clock or so by the time I arrived at San Francisco and my good friend **Ken Macker** of Philippine Air Lines was there to meet me by pre-arrangement. Since I was leaving early the next morning on an American nonstop for Dallas, I had asked about a motel near the airport so I wouldn't have to go all the way into town.

I'm happy to report there is a very fine motel, called the Casa Mateo Inn at San Mateo, a 10-minute drive south of San Francisco Airport. It has the added advantage of being run by an ex-Air Transport Command officer by the name of **Merrill Stock** and he naturally welcomes anyone connected with the flying business. It's just the place for an overnight stop.

The taxicab to the airport next morning cost $3.00, which seemed a little high for such a short ride, but maybe it's fair enough. Maybe Stock can get a better rate for his hotel patrons as he develops more airport business, since that 10-minute ride was more than the round-trip fare into San Francisco by limo. I'm all for encouraging hotels and motels near airports.

Nonstop to Dallas. American's flight to Dallas was routine and fine. To skip over such a vast area of the country in one hop is a great benefit when you want to make time. On arrival at Love Field I found I couldn't get a direct connection to Forth Worth, where I was headed for the airport dedication, so I called **Chuck Beard** of Braniff and barely managed to carry on a conversation above the maddening noise and confusion which is ever-present at Love Field's ghastly terminal. Chuck sent **Charlie South**, Braniff's manager at Rio de Janeiro who was in Dallas on a home office visit, to pick me up in a car, and I ended up having dinner with the two of them and then snagged a Hertz car and drove to the Hotel Texas in Forth Worth.

Thus ended the major stages of a long trip which took me to 26 new airports and a fine visit to the northwest. I should mention at this point in connection with visiting West Coast Airlines that **Herb Munter**, executive v.p., is a real pioneer in aviation. Munter was a test pilot for Boeing Airplane Co. as early as 1917 and was later a bush pilot in Alaska.

I spent the good part of a day in Seattle with Munter and **E. B. Code**, v.p., and **Doug Billmeyer**, learning about the company and how the merger with Empire has worked out.

Maine Still Blank. Bit by bit I'm working on my goal of hitting every airline airport in the country, but I've still got about 150 to go. As might be expected, there are more that I *haven't* been to within a few hundred miles of Washington, D. C., than in any other section. I'll get to them before long. There is only one state out of the 48 where I've never landed or taken off with a scheduled airline, and that state is Maine. I hope to remedy that, too, before long.

in south america

Braniff does make the difference!

Mr. Fred Cooper of St. Paul, Minnesota's Mercury Travel Bureau is a man who knows. Just back from our St. Paul-to-Sao Paulo goodwill tour, his enthusiasm was bounded only by the limitations of putting it down in black and white.

Mr. Cooper's letter pleased us very much because he really gets around. In the last five years, he's visited Europe 3 times, the Orient twice, been around the world once and to South America 2 times. He says you can't beat South America for tourist appeal. Cites its "combination of old world charm and modern, up-to-date cities, excellent food and accommodations . its unforgettable scenery and interesting sightseeing."

But he didn't stop there . . not our booster Mr. Cooper. He went on record as saying our service was excellent in every respect and the personalized attention worth a special commendation. To Mr. Cooper, our warm thanks for such warm praise!



Fred Cooper

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News at Deadline

Vandenberg Offers Budget Alternative

The Air Force will be satisfied with a budget of $13.1 billion in new money during the coming fiscal year, an increase of $1.4 billion over the figure set in the Eisenhower budget, according to Gen. Hoyt Vandenberg, retiring Chief of Staff.

With this money the USAF can attain the 143 wings by the middle of 1957, Vandenberg estimates. By June, 1955, some 120 wings would be available, as compared with the 110-114 contemplated by Defense Secretary Wilson, under the Administration's proposed budget.

Turboprop Bomber Cancelled by Navy

North American Aviation's XA2J turboprop attack bomber has been cancelled by the Navy. Two counter-rotating propellers, powered by Allison T40-A-6 turboprop engines, had given trouble since the first flight in January, 1953. Only two experimental models were built, and no production order had been placed.

Temco's F3H Contract Cancelled by Navy

Latest announced cut-back in the industry is cancellation of the orders held by Temco Aircraft Corp. for production of the McDonnell-designed F3H Demon. The entire scheduled output, reportedly involving "about 100 planes," has been cancelled by the Navy. McDonnell's production of the Demon is as yet unaffected.

Robert McCulloch, president of Temco, says that he cannot accept the reasoning that increased costs would result from Temco's being a second source for the F3H, in view of his firm's record of producing planes and assemblies at half the average industry cost.

Beech Will Build T-36A Prototypes

The Beech Aircraft Corp. will build two T-36A trainer-transport aircraft for test purposes, although the production order for 193 of the planes has been cancelled.

Military work now under way at Beech includes: overhaul and modification of USAF C-45G's and Navy SNB's; production of USAF L-23A's; production of USAF T-34A's; production of the model 45 Beech Mentor for the Chilean air force; production of wing assemblies for Lockheed T-33's and F-94C's.

New Enforcement Head

New chief of enforcement for the CAB is Robert L. Griffith, former airline and government attorney. Griffith moves to the post from the Office of Price Stabilization; in the past he has served with Delta Air Lines, American Airlines, and the New York law firm of Pruitt, Hale, and Coursen.

Industry Backlog Reaches $18.1 Billion

The aircraft industry's backlog reached $18.1 billion on March 31, up from the year-end figure of $17.3 billion, according to the CAA and the Census Bureau. When duplications are included the backlog figures are as follows: $18.5 billion (March 31); $17.7 billion (Dec. 31, 1952; $13.8 billion (March 31, 1952).

Net sales during the first quarter of this year totaled $2 billion, net new orders, $2.9 billion.

More Lockheed Orders

More military orders have gone to Lockheed for T-33 jet trainers and for military versions of the Super Constellation (presumably early-warning radar planes) according to Lockheed's executive vice president, Courtlandt S. Gross.

Autopilot Demonstrated

The Summers Gyroscope Co. reports that its all-weather autopilot has been demonstrated to the Army Ground Forces. The device was mounted in an L-17 (Navion). Tests included ILS approaches, turbulent air, and crosswinds up to 50 mph.

Federal-Aid Group To Hear Reports

A 12-man group of industry figures studying the Federal-aid-to-airports program is scheduled to meet in Washington on July 9 and 10 in order to hear progress reports of three sub-committees. The subcommittees have been studying the history and past performance of Federal aid; the current status of the civil airport program; and the future responsibility of the Federal Government in this field.

Helicopter Firms Expect No Immediate Cut

Helicopter manufacturers see no cancelled contracts and no lay-offs as far as fiscal 1954 production is concerned, according to an AMERICAN AVIATION survey of the industry. Typical of the reaction as this issue went to press was the following statement from B. H. Whelan, General Manager of Sikorsky Aircraft: "we have received no cancellation or any change in program as previously scheduled affecting delivery of Sikorsky helicopters, and plan no reduction in personnel."

Second Fletcher Flies

The second, lighter model of Fletcher Aviation's single-seat ground support plane has made its first flight. The FD-25-B is made of aluminum instead of magnesium, and incorporates changes in the elevator and radio equipment. Public showing in planned for the air show in Dayton over Labor Day.

Restudy Tower Closings

The closing of 18 airport traffic control towers on July 1 as an economy measure will be restudied by the CAA. The reconsideration was ordered by CAA Administrator Fred B. Lee following protests from NASAO, AOPA, CAOA, and civic leaders.

Canadair to Get Order

Canadair, Ltd., has been told by the Canadian government that it can expect "an additional aircraft production order of substantial proportions . . . in the very near future." Canadair's contract to build the Beech T-36A under license for the USAF was recently cancelled, resulting in an expected lay-off of 1500 employes.

NWA Reorganizes Management Set-Up

The management organization of Northwest Airlines has been rearranged, according to Harold R. Harris, President. The company, which has been administered from a single general office in St. Paul, Minn., will now have a Continental Division, with headquarters there, and an Orient Division, with headquarters in Tokyo.

Policy and functional control over the two divisions will be exercised from a

System Executive Office, some of whose members will be located in New York.

Malcolm S. Mackay, Vice-President, will head the Continental Division; L. B. Kinports will head the Orient Division, pending the appointment of a vice-president.

Examiner Recommends EAL-CAI Merger

CAB Examiner Edward T. Stodola has recommended approval of the Eastern-Colonial merger agreement. He found also that Eastern had acquired "unlawful control" of Colonial and that a National-Colonial merger would be in the public interest.

The control charge was not sufficient to outweigh benefits of the Eastern-Colonial deal, he declared, and the voluntary nature of the agreement gave it precedence over a National-Colonial merger, at issue only at the instigation of CAB. Following briefs and oral argument, the case will go to CAB for decision and then to the White House for final action.

Passenger 'Copter Service Scheduled

Passenger helicopter service will be inaugurated in the New York area on July 6 by New York Airways, providing the CAB approves a tariff recently filed. The carrier has received the first of four Sikorsky S-55's which are being converted to seven-passenger configuration by Lockheed Aircraft Service-International.

Passengers will be carried between Newark, La Guardia, and Idlewild airports on a first-come, first-served basis; probably no more than four will be carried at any one time. Fares (including tax): La Guardia-Newark, $22.50; La Guardia-Idlewild, $7.50; Newark-Idlewild, $15.

Italy Gets Contract To Build F-86D's

Italy has received a $22.5 million contract for Fiat-built F-86D Sabrejets. The Air Force placed the order for the U.S. government. First 50 planes will be built from parts supplied by North American Aviation; later planes will be completely the responsibility of Fiat. Use will be restricted to NATO members.

Army Guided Missile Courses Set Up

Army training courses for guided missile maintenance and operation have been established, presumably indicating that the Army has ready a guided missile for tactical use. The training will involve maintenance of electronic guidance and fire control systems for the Corporal, an experimental missile under development since 1947. The Army antiaircraft and guided missile school at Fort Bliss, Texas, is the probable site.

USAF to Recall Leased C-54's

The Air Force will recall the 37 Douglas C-54's now leased to scheduled and non-scheduled carriers. Majority of the planes (about 25) are flying in the Korean airlift.

Recall decision was reportedly made by AF and Air Materiel Command, with Military Air Transport Service disagreeing. Future role of the C-54's is not clear. There are reports that AF will modify them, to standardize the fleet, and offer new leases at higher prices (present lease is $4,821 monthly).

AF, in testimony before Congress, has stated that use of commercially operated planes in the airlift will be reduced to about 20% of what it was; some observers believe the recall is to carry out this plan. In this case, new leases would carry no restriction on use.

There was also speculation that this was the "Tunner plan," under which all recalled C-54's would be assigned exclusively to the airlift, presumably flown by airlines, with an equal number of company-owned planes being withdrawn. Some AF officers have claimed this plan would reduce costs.

List of leased planes: Pan American, 16; TWA, two; Northwest, five; Overseas National, four; Francis G. Christmas, two; George A. Enloe, two; Seaboard & Western, one; Viking, one; Flying Tigers, two; Transocean, two; Great Lakes, one.

New Bids Sought for Navy Cargo Routes

Bids on the Navy's transcontinental cargo route contract have been sought and are now being analyzed. The route is currently being flown by the Flying Tiger Line at 73.9¢ per C-46 plane-mile.

The proposal, on which bids were due June 18, involves three parts: one, a transcontinental service; the second, between Newark and Boston; and the third, special flights anywhere within the continental limits.

Higher Coach Fares Suspended for 90 Days

American Airlines' proposed new coach tariffs, designed to solve the problem of low fares on heavily travelled short route segments, have been suspended for 90 days by the CAB. The "middle-level" fares were to have become effective on the Boston-New York-Washington trips on June 28. The CAB said that the fares "may be substantially higher than fares for similar service and unreasonably high in relation to first class."

The fares were about one cent per passenger-mile more than high-density coach fares and one half cent under first class.

USAF Working on Crash Locator

A crash-locator is under development by the USAF, according to Col. Wallace S. Dawson, deputy commander of the Air Force Rescue Service. The device would be automatically released from the tail section of the aircraft and would transmit a signal for five minutes once every fifteen minutes. Signals would continue for at least 24 hours. It will be "a few years," however, before the instrument is in use, Dawson said.

Flight Engineers Prepare to "Raid"

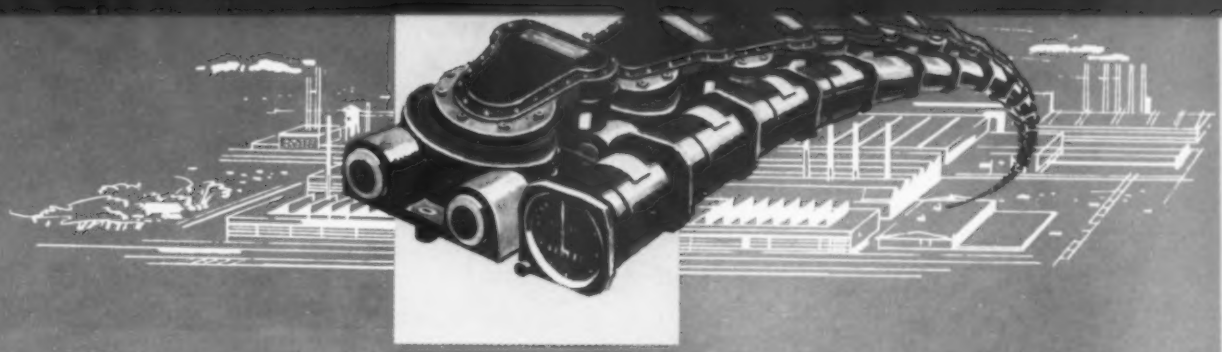
An organizing drive within the AFL, designed to bring new groups of flight engineers under the jurisdiction of the Flight Engineers International Association, is called for in the latest issue of the FEIA's Flight Engineer. The engineers singled out in the article are those on Northwest Airlines (now represented by the AFL-Machinists) and those on American Airlines (now represented by the Air Carrier Flight Engineers Association, an ALPA-AFL affiliate).

IAM's general vice president, Elmer E. Walker, is quoted in the publication as considering that such an organizing drive would constitute "raiding."

Pilot Training Act Would Use Schools

An aircraft pilot training act (HR 5635) has been introduced into Congress by Rep. Peter Mack, Jr. (D., Ill.) calling for the Dept. of Commerce to encourage and develop ground-school courses in senior high schools, colleges, and universities.

Certificates of eligibility held by qualified students would lead to primary flight training to be paid for by the Government, under contract with flying schools. This is the first airman's training bill introduced which calls for using the facilities of the public schools and universities for preliminary training.



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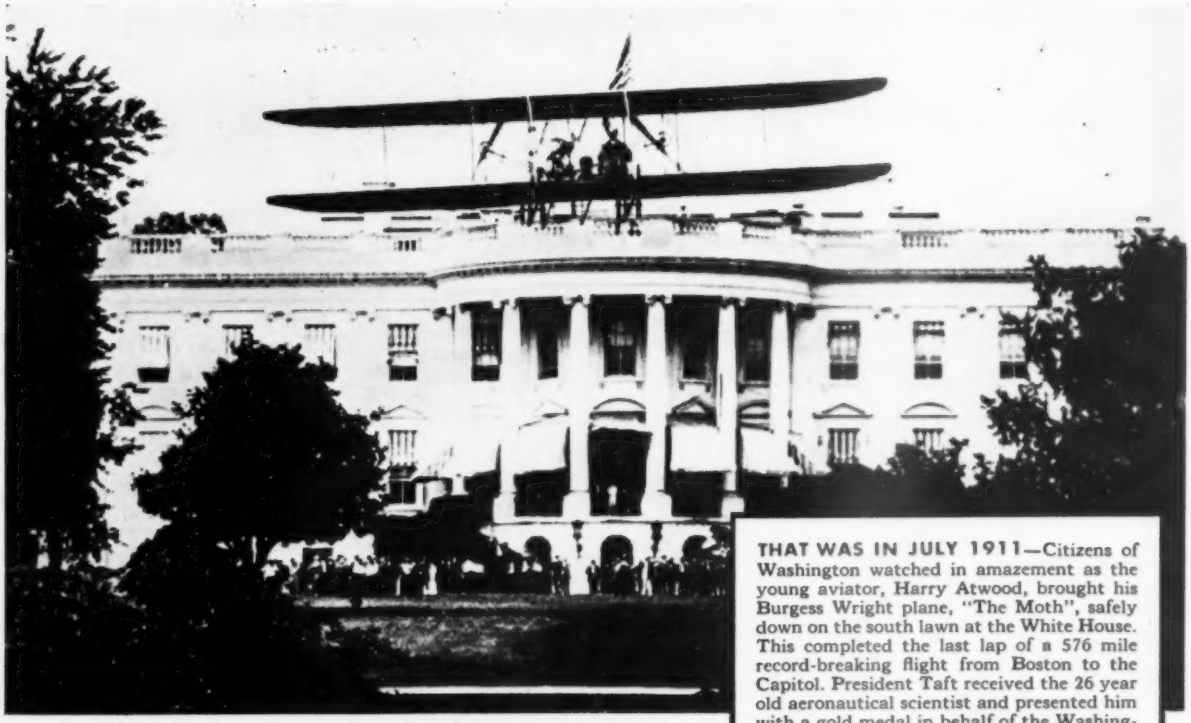
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Atwood lands at the White House!



THAT WAS IN JULY 1911—Citizens of Washington watched in amazement as the young aviator, Harry Atwood, brought his Burgess Wright plane, "The Moth", safely down on the south lawn at the White House. This completed the last lap of a 576 mile record-breaking flight from Boston to the Capitol. President Taft received the 26 year old aeronautical scientist and presented him with a gold medal in behalf of the Washington Aero Club. Today, Harry Atwood is still active in scientific development, particularly in plastics and electronics.



SAME SETTING—FORTY YEARS LATER—Aviation is today so much a part of our everyday lives that a giant Boeing B-29 in from Tokyo can fly over Washington and go virtually unnoticed by the people below.

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